

DEPARTMENT OF THE NAVY  
NSY PUGET SOUND DET BOSTON



USS HURRICANE (PC-3)

SPECIFICATIONS FOR WORK TO BE ACCOMPLISHED

SPECIFICATION NUMBER: SSP:BOST-003-05

\*NO CS DATE\*

DATE PREPARED

## I N D E X

ITEMS THAT ARE STRUCK OUT ON THIS INDEX DO NOT APPLY TO THIS CONTRACT.

CATEGORY I. FY-05 STANDARD ITEMS APPLICABLE TO THIS JOB ORDER WITHOUT FURTHER REFERENCE

<u>ITEM NO.</u>	<u>TITLE</u>	<u>DATE</u>
009-01	General Criteria; accomplish	29-AUG-03
009-02	Reporting of Material Usage Requirements for Work at Naval Facilities for Environmental Compliance; accomplish	29-AUG-03
009-03	Toxic and Hazardous Substances; control	29-AUG-03
009-04	Quality System; provide	29-AUG-03
009-05	Temporary Accesses; provide	29-AUG-03
009-06	Protection During Contamination-Producing Operations and Maintaining Cleanliness; accomplish	29-AUG-03
009-07	Confined Space Entry, Certification, Fire Prevention and Housekeeping; accomplish	29-AUG-03
009-08	Fire Protection at Contractor's Facility; accomplish	29-AUG-03
009-10	Shipboard Asbestos-Containing Material (ACM); control	30-AUG-02
009-18	Magnetic Material; control	30-AUG-02
009-19	Provisioning Technical Documentation (PTD); provide	30-AUG-02
009-20	Government Property; control	30-AUG-02
009-21	Logistics and Technical Data; provide	30-AUG-02
009-23	Interferences; remove and install	29-AUG-03
009-24	Isolation, Blanking, and Tagging Requirements; accomplish	29-AUG-03
009-29	Asbestos-Free Pipe Hanger Liner Material; install	30-AUG-02
009-34	Fire Protection of Unmanned Craft at Contractor's Facility; provide	30-AUG-02
009-35	Confined Space Entry, Certification, Fire Prevention and Housekeeping; accomplish	29-AUG-03

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009-39	Technical Manual Contract Requirement (TMCR) for New Technical Manuals for Commercial Equipment/ Component; provide	29-AUG-03
009-40	Requirements for Contractor Cranes at Naval Facilities; accomplish	30-AUG-02
009-59	Organotin Antifouling Material; control	30-AUG-02
009-60	Schedule and Associated Reports; provide and manage	29-AUG-03
009-61	Shipboard Use of Fluorocarbons; control	29-AUG-03
009-64	Synthetic Fire-Resistant Hydraulic Fluid; control	30-AUG-02
009-65	Polychlorinated Biphenyls (PCBs); control	30-AUG-02
009-67	Integrated Total Ship Testing; manage	30-AUG-02
009-69	Heavy Weather Plan; provide	29-AUG-03
009-70	Confined Space Entry, Certification, Fire Prevention and Housekeeping for Unmanned Craft; accomplish	29-AUG-03
009-72	Physical Security of U.S. Naval Vessels and Crews at Private Contractor's Facility; accomplish	29-AUG-03
009-73	Shipboard Electrical/Electronic/Fiber Optic Cable; remove, relocate, repair, and install	29-AUG-03
009-77	Cofferdam Requirements; accomplish	29-AUG-03
009-79	Government Owned Material (GOM); status reporting	30-AUG-02
009-80	Ship's Facilities; provide	30-AUG-02
009-81	Compartment Closeout Schedule; provide	30-AUG-02
009-82	Data Requirements When Installing an Equal Component Vice Specified Component; provide	30-AUG-02
009-83	Wire Rope Fitting Verification; provide	30-AUG-02
009-84	Accountability of Temporary Fasteners; provide	30-AUG-02
009-86	Recovery of Chlorofluorocarbon (CFC) Refrigerants and Fire Suppressant Halon (H) Materials; accomplish	29-AUG-03

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009-87	Chlorination Procedures; accomplish	30-AUG-02
009-88	Collection, Holding and Transfer (CHT) and Mogas Tanks, Spaces, and Piping, including Sewage or Mogas-Contaminated Tanks, Spaces, and Piping; certify	29-AUG-03
009-89	Purchase and Inspection Requirements for Contractor Furnished Zinc Anodes; accomplish	30-AUG-02
009-93	Emergency Planning and Community Right-to-Know Act (EPCRA) and Pollution Prevention Act (PPA) Information; provide	30-AUG-02
009-94	General Environmental Requirements for Work at Contractor's Facility; accomplish	29-AUG-03
009-95	Mechanically Attached Fittings (MAF's) for Piping Systems; install	30-AUG-02
009-97	Shipbuilding and Ship Repair Operations National Emission Standard for Hazardous Air Pollutants (NESHAPS) for Surface Coating Information; provide	29-AUG-03
009-99	Ship Departure Report; provide	29-AUG-03
009-100	Ship's Stability (PCP); maintain	30-AUG-02
009-101	Requirements for Mooring, Entry to and Departure from Contractor's Facility; accomplish	29-AUG-03
009-102	Alteration Verification; provide	30-AUG-02
009-103	Weight and Moment Change Data; provide	30-AUG-02
009-106	Work Authorization and Control Process; accomplish	29-JUL-04
099-01	Environmental Requirements For Work Within Naval Station Ingleside	13-DEC-04
099-02	Environmental Requirements for Work Within the State of Texas	13-DEC-04
099-03	Glass Reinforced Plastic (GRP) Repair and Fabrication Procedures; accomplish	13-DEC-04
099-04	MCM Class Ship Glass Reinforced Plastic (GRP) Repair and Fabrication Procedures; accomplish	13-DEC-04
099-05	Heavy Weather Plan for Work on Naval station Ingleside; provide	13-DEC-04

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## CATEGORY II. FY-05 STANDARD ITEMS WHICH MAY BE INVOKED IN THE WORK ITEMS OF THIS JOB ORDER

<u>ITEM NO.</u>	<u>TITLE</u>	<u>DATE</u>
009-09	Process Control Procedure (PCP); provide and accomplish	29-AUG-03
009-11	Insulation and Lagging Requirements; accomplish	30-AUG-02
009-12	Welding, Fabrication, and Inspection Requirements; accomplish	29-AUG-03
009-13	Meter; repair and calibrate	30-AUG-02
009-14	Gages and Thermometers; repair and calibrate	30-AUG-02
009-15	Rotating Machinery; balance	30-AUG-02
009-16	Electronic Equipment; repair	30-AUG-02
009-17	Rotating Electrical Equipment; repair	29-AUG-03
009-22	Shipboard Electric Cable; test	29-AUG-03
009-25	Structural Boundary Test; accomplish	29-AUG-03
009-26	Teletype Equipment; repair	30-AUG-02
009-27	Material Identification and Control (MIC) for Level I Systems; accomplish	30-AUG-02
009-28	Metal-Sprayed Coating System for Corrosion Protection; accomplish	30-AUG-02
009-30	Boiler Sample Tubes; inspect	30-AUG-02
009-31	Boiler Waterjet Cleaning; accomplish	30-AUG-02
009-32	Cleaning and Painting Requirements; accomplish	16-MAR-04
009-33	Rotating Electrical Equipment; rewind	29-AUG-03
009-36	Controller; repair	30-AUG-02
009-37	General Procedures for Woodwork; accomplish	29-AUG-03

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009-38	Boiler Dry Lay-up; accomplish	30-AUG-02
009-41	Technical Manual Contract Requirement (TMCR) for a Topically Structured Technical Manual; provide	29-AUG-03
009-42	Technical Manual Contract Requirement (TMCR) for Updating Technical Manuals; provide	29-AUG-03
009-43	Light-Off Assessment (LOA) Support for Steam Propulsion System; provide	29-AUG-03
009-44	Light-Off Assessment (LOA) Support for Gas Turbine Propulsion System; provide	29-AUG-03
009-45	Tapered Plug Valve; repair	29-AUG-03
009-46	Butterfly Valve, Synthetic and Metal Seated; repair	29-AUG-03
009-47	Gate Valve; repair	29-AUG-03
009-48	Pressure Seal Bonnet Valve; repair (shop)	29-AUG-03
009-49	Pressure Seal Bonnet Valve; repair (in-line)	29-AUG-03
009-50	Horizontal Swing Check Valve; repair	29-AUG-03
009-51	Globe, Globe Angle, and Globe Stop Check Valve; repair	29-AUG-03
009-52	Relief Valve; repair	29-AUG-03
009-53	Bolted Bonnet Steam Valve; repair (shop)	29-AUG-03
009-54	Bolted Bonnet Steam Valve; repair (in-line)	29-AUG-03
009-55	Regulating/Reducing Valve; repair	29-AUG-03
009-56	Boiler Wet Lay-Up; accomplish	30-AUG-02
009-57	Reduction Gear Security Requirements; accomplish	30-AUG-02
009-58	Pump and Driver Shaft Alignment; accomplish	29-AUG-03
009-62	Boiler Handhole and Manhole Seats and Plates; inspect	29-AUG-03
009-63	Lubricating Oils and Hydraulic Fluids; analyze	30-AUG-02

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009-66	Light-Off Assessment (LOA) Support for Diesel Propulsion System; provide	29-AUG-03
009-68	Bolted Bonnet Valve; repair	29-AUG-03
009-71	Testing Requirements for Piping Systems; accomplish	29-AUG-03
009-75	Circuit Breaker; repair	30-AUG-02
009-76	Waveguide and Transmission Line Temporary Lay-Up, Pressurization, and Purging; accomplish	30-AUG-02
009-78	Passive Countermeasures System (PCMS) Material Repair/Installation Requirements; accomplish	29-AUG-03
009-85	Government Sponsored Planning Yard/Configuration Data Manager (CDM) On-Site Representative Facility; provide	30-AUG-02
009-90	Technical Representative; provide	29-AUG-03
009-91	Propeller In-Place Inspection; accomplish	29-AUG-03
009-92	Resilient Mount; install	29-AUG-03
009-96	Ball Valve; repair	29-AUG-03
009-98	Monel Fasteners; inspect	30-AUG-02
009-104	Vibration Testing and Analysis; accomplish	29-AUG-03
009-105	Thermal Sprayed Coatings for Machinery Component Repair; accomplish	29-AUG-03

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<u>ITEM NO.</u>	<u>TITLE</u>
077-01-001	Hazardous Waste Produced on Naval Vessels; control
110-11-001	Underwater Hull; inspect and repair (DRYDOCK)
110-90-001	ShipAlt PC1-0059K, Hull Girder Enhancement; accomplish
123-11-001	Fuel Oil Tank; inspect (DRYDOCK)
123-11-002	Fuel Oil Tank; inspect (DRYDOCK)
123-11-003	Fuel Oil Tank; inspect (DRYDOCK)
123-11-004	Fuel Oil Tank; inspect (DRYDOCK)
123-11-005	Fuel Oil Tank; inspect (DRYDOCK)
123-14-001	Potable Water Tank; inspect, repair and preserve (DRYDOCK)
123-14-002	Potable Water Tank; inspect, repair and preserve (DRYDOCK)
123-17-001	Contaminated Oil Tank; inspect (DRYDOCK)
123-21-001	Peak Void; inspect and repair (DRYDOCK)
163-11-001	Sea Chests; inspection and repair (DRYDOCK)
164-11-001	Ballistic Plating and Handrail; repair
167-85-001	PC1 Class AER-0071E, Manhole Replacement Incidental to Anchor Windlass; accomplish
171-11-001	Mast; inspect, repair and preserve
233-11-001	Main Propulsion Diesel Engine Coolers; flush
233-12-001	Main Propulsion Diesel Engine Coolers; flush
233-13-001	Main Propulsion Diesel Engine; replace
233-13-002	Main Propulsion Diesel Engine Coolers; flush



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233-14-001 Main Propulsion Diesel Engine; replace

233-14-002 Main Propulsion Diesel Engine Coolers; flush

233-85-001 PC1 Class AER-0030E Rev 00, Jacket Water Recovery System Modification; accomplish

243-11-001 Propulsion Shafting; repair (DRYDOCK)

243-12-001 Propulsion Shafting; repair (DRYDOCK)

243-13-001 Propulsion Shafting; repair (DRYDOCK)

243-14-001 Propulsion Shafting; repair (DRYDOCK)

244-11-001 Propulsion Shaft Bearings; replace (DRYDOCK)

244-12-001 Propulsion Shaft Bearings; replace (DRYDOCK)

244-13-001 Propulsion Shaft Bearings; replace (DRYDOCK)

244-14-001 Propulsion Shaft Bearings; replace (DRYDOCK)

245-11-001 Propeller; clean and balance (DRYDOCK)

245-12-001 Propeller; clean and balance (DRYDOCK)

245-13-001 Propeller; clean and balance (DRYDOCK)

245-14-001 Propeller; clean and balance (DRYDOCK)

251-41-001 Starboard Engine Room Air Intake; clean and inspect

251-42-001 Port Engine Room Air Intake; clean and inspect

251-43-001 Starboard Engine Room Air Intake; clean and inspect

251-44-001 Port Engine Room Air Intake; clean and inspect

259-11-001 Main Propulsion Diesel Engine Exhaust System Flapper Valves; repair

261-85-001 PC1 Class AER-0045E, Fuel System Knife Edge Strainer Replacement; accomplish

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304-85-001 PC1 Class AER-0023E, Rev 01, Portable Shore Power Box Upgrade; accomplish

311-21-001 Ship's Service Diesel Generator Engine; remove repair and test

311-21-002 Ship's Service Diesel Generator; remove, clean and test

311-22-001 Ship's Service Diesel Generator Engine; remove repair and test

311-22-002 Ship's Service Diesel Generator; remove, clean and test

311-85-001 PC1 Class AER-0066E Rev 02, Forward Generator Exhaust Piping Mod; accomplish

311-85-002 PC1 Class AER-0057E Rev 01, Aft Generator Exhaust Baffle Installation; accomplish

342-11-001 Exhaust Piping at Overboard; repair (DRYDOCK)

342-12-001 Exhaust Piping at Overboard; repair (DRYDOCK)

437-21-001 Tank Level Indicating (TLI) System; repair

508-11-001 Lagging and Insulation within Machinery Spaces; replace

508-12-001 Lagging and Insulation Outside Machinery Spaces; replace

513-11-001 Forward and Aft Engine Room Supply Fans; repair and test

514-85-001 PC1 Class AER-0079E, Rev 01, A/C Compressor Controller Enclosure Replacement; accomplish

520-11-001 Sea Valves; repair and replace

522-85-001 PC1 Class AER 0040E, Replace Miscellaneous Ball Valves; accomplish

529-11-001 Drainage System Valves; repair

531-52-001 Seawater Booster Pump; replace

531-80-001 ShipAlt PC1-0079D, Reverse Osmosis Replacement; accomplish

533-11-001 Recirculating Brominator; repair and test

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540-11-001 Release Handle Locker for Gas Can Storage; repair

562-11-001 Starboard Rudder; repair (DRYDOCK)

562-12-001 Port Rudder; repair (DRYDOCK)

565-11-001 Starboard Fin Stabilizer; repair (DRYDOCK)

565-12-001 Port Fin Stabilizer; repair (DRYDOCK)

581-11-001 Anchor and Anchor Chain; inspect and preserve

581-80-001 ShipAlt PC1-0053D Rev. 02, Replace Anchor Windlass;  
accomplish

581-85-001 PC1 Class AER-0007E, Rev 01, Anchor Padeye; accomplish

583-85-001 PC1 Class AER-0088E, Stern Ramp Side Guide Modifications;  
accomplish

583-85-002 PC1 Class AER-0090E, Stern Ramp Mod - Bunk Support  
Installation; accomplish

583-85-003 PC1 Class AER-0087E, Stern Ramp Lower Bunk Stowage Bracket  
Installation; accomplish

583-90-001 ShipAlt PC1-0032K, Combatant Craft Retrieval System;  
accomplish

593-11-001 Sewage (VCHT) System Piping; clean (PCP)

593-11-002 CHT Sewage Tank; inspect and preserve (DRYDOCK)

593-11-003 Sewage (VCHT) System Piping; test

593-21-001 Oily Water Tank; inspect (DRYDOCK)

593-21-002 Grey Water Tank; inspect (DRYDOCK)

593-21-003 Grey Water Tank; inspect (DRYDOCK)

593-85-001 PC1 Class AER 0075E Rev 02, Installation CHT System Valve  
Replacement; accomplish

613-11-001 Flagbag Fingers; install

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622-11-001 Floor Plate Turnlock Fasteners and Receptacles; install

631-31-001 Underwater Hull; clean and preserve (DRYDOCK)

631-41-001 Hull Freeboard; blast and preserve (DRYDOCK)

633-21-001 Impressed Current Cathodic Protection; replace reference electrode assemblies (DRYDOCK)

635-11-001 Thermal Insulation; remove and install

635-11-002 Thermal Insulation; remove and install

637-11-001 Sheathing; repair

640-21-001 Mess Deck Seat Cushions; install

660-11-001 Zone 8 Air Handling Unit Diffuser Vent; replace

857-11-001 Temporary Duty Section Berthing Off-Ship; provide

980-11-001 Ship's Force Assistance; accomplish

982-11-001 Light-Off Assessment (LOA/LOE) Support for Diesel Propulsion System; provide

982-21-001 LOA/LOE Inspection Discrepancy Correction Assistance; provide

982-31-001 Dock Trial and Fast Cruise; accomplish

982-31-002 Sea Trials; accomplish

982-41-001 Dock Trial and Sea Trial Discrepancy Correction; accomplish

991-12-001 Temporary Staging for Ship's Force Use; provide

992-11-001 SUPSHIP Office Space Without Computers (in plant/downriver availabilities); provide

992-11-002 Temporary Services; provide

992-11-003 Oil Spillage and Floating Sandblasting Debris Booms; install

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- 992-11-004 Ship's Force Parking Area (Contractor Provide Watch Hut,  
Guards); provide
- 992-11-005 Defueling and Fueling; accomplish
- 992-31-001 Cleaning and Pumping; accomplish
- 997-11-001 Drydocking and Undocking; accomplish

ITEM NO: 077-01-001

PCN: EDC1-P113

CMP : NONE

PLANNER: FLAHERTY

1. SCOPE :

1.1 Title: Hazardous Waste Produced on Naval Vessels; control

## 1.2 Location of Work:

### 1.2.1 Throughout the Ship

### 1.3 Identification:

1.3.1 Not Applicable

## 2. REFERENCES :

## 2.1 Resource Conservation and Recovery Act (RCRA)

2.2 Federal Hazardous Materials Transportation Act, 49 U.S.C. 5103

### 2.3 Applicable Hazardous Waste Manifest Form

2.4 10 U.S.C. 7311

### 3. REQUIREMENTS :

3.1 Manage and dispose of all hazardous waste listed in 3.5 in accordance with 2.1 and 2.2.

3.1.1.1 When a Navy generator number is required by this Work Item, submit the original of 2.3 to the SUPERVISOR for assignment of Environmental Protection Agency (EPA) or delegated state environmental agency identification number.

3.1.2 Manage and transport for Navy disposal, Navy-generated hazardous waste listed in 3.5 in accordance with 2.1 and 2.2, as designated by the SUPERVISOR.

3.1.3 Submit one legible copy of 2.3 signed by the owner or operator of the disposal facility to the SUPERVISOR within 48 hours of receipt from owner or operator of disposal facility.

3.2 Complete documentation required by 2.1 and 2.2, using EPA or delegated

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state environmental agency identification number in accordance with 2.4.

3.2.1 Documentation related to hazardous waste generated solely by the physical actions of Ship's Force or Navy employees (termed Navy-Generated Hazardous Waste) on board the vessel shall only bear a generator identification number issued to the Navy pursuant to applicable law. The contractor shall obtain SUPERVISOR'S concurrence with the categorization of the waste as Navy-generated before completion of the manifest. The manifest prepared shall be presented to the SUPERVISOR for completion after the hazardous waste has been identified.

3.2.2 Documentation related to hazardous waste generated solely by the physical actions of contractor personnel (termed Contractor-Generated Hazardous Waste) shall bear a generator identification number issued to the contractor pursuant to applicable law. Regardless of the presence of other material in or on the shipboard systems or structure which may have qualified a waste stream as hazardous, where the contractor performs work on a system or structure using materials (whether or not the use of such materials was specified by the Navy) which by themselves would cause the waste from such work to be a hazardous waste, documentation related to such waste shall only bear a generator number issued to the contractor.

3.2.3 Documentation related to hazardous waste generated by the combined physical actions of Navy and contractor personnel (termed Co-Generated Hazardous Waste) shall bear a generator identification number issued to the contractor pursuant to applicable law and shall also cite in the remarks block a generator identification number issued to the Navy pursuant to applicable law. When the contractor merely drains a system and such drainage creates hazardous waste or the contractor performs work on system or structure using materials which by themselves would not cause the waste from such work to be hazardous waste but such work nonetheless creates a hazardous waste, documentation related to such waste shall bear a generator identification number issued to the contractor and shall also cite in the remarks block a generator identification number issued to the Navy. The contractor shall sign the generator certification on the Uniform Hazardous Waste Manifest whenever use of the manifest is required for disposal. The contractor shall obtain SUPERVISOR's concurrence with the categorization of the wastes as co-generated before completion of the manifest. Manifests prepared shall be presented to the SUPERVISOR for completion after the hazardous waste has been identified.

3.3 If the contractor, while performing work at a Government facility, cannot obtain a separate generator identification number from the state in which the availability will be performed, the contractor shall notify the SUPERVISOR within three business days of receipt of written notification by the state. After obtaining approval of the SUPERVISOR, the contractor shall use the Navy site generator identification number and insert in the remarks block the

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contractor generator identification number issued for the site where his main facilities are located.

3.4 If, for availabilities at a contractor-owned or controlled facility, the Navy cannot obtain a separate generator identification number for use at a contractor facility, the Navy shall notify the contractor within three business days of receipt of notification by the state. The contractor shall dispose of hazardous waste in accordance with 2.1, 2.2, and 3.2.3.

3.5 Hazardous waste, as identified in 2.1, expected to be produced during performance of this Job Order:

TYPE	NAVY	AMOUNT CO-GENERATED	CONTRACTOR
Acid Solutions (may include spent sulfamic, citric, chromic, nitric, sulfuric, hydrochloric, etc.)	_____	3000 Gals_____	_____
Ethylene Glycol (Antifreeze)	_____	40 Gals_____	_____
Sodium Hydroxide	_____	_____	_____
Cleaning Solvents	_____	50 Gals _____	_____
Sodium Phosphates (Tri, Bi, or Mono)	_____	_____	_____
Fluorocarbons	_____	100 Lbs_____	_____
Morpholine	_____	_____	_____
Sodium Chromates	_____	_____	_____
Hydrazine	_____	_____	_____
Methyl Ethyl Ketone	_____	_____	_____
Spent Abrasive Blast Material (contaminated with a known hazardous waste)	_____	10 Tons_____	_____
Trichloroethane	_____	_____	_____
Miscellaneous Chemicals (Ignitable)	_____	10 Gals_____	_____



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Miscellaneous Chemicals (Corrosive)	_____	5 Gals_____	_____
Miscellaneous Chemicals (TCLP Toxic)	_____	_____	_____
Miscellaneous Chemicals (Reactive)	_____	_____	_____
Oil (Synthetic)	_____	_____	_____
Paints (Enamel, Latex, Epoxy, thinners, oil based, rubber paint, non-skid, lacquer, remover, varnishes)	_____	40 Gals_____	_____
Paints (May include lead, cadmium, or chrome)	_____	_____	_____
Paint Strippers (phenols, lead, chromium)	_____	_____	_____
Sludge (Contaminated with a known hazardous waste)	_____	10 Gals_____	_____
Wool Felt (contaminated with chromium and PCB's)	_____	5 Pounds____	_____
Oily Rags	_____	200 Lbs_____	_____
Oil/Water	_____	100 Gals_____	_____
Diesel Fuel Oil	_____	700 Gals_____	_____
Fresh Water with Inhibitor	_____	50 Gals_____	_____
Lube Oil (MIL-L-46152)	_____	5 Gals_____	_____
Lube Oil (Shell Rimila X40)	_____	200 Gals	_____
Hydraulic Oil	_____	200 Gals	_____
Saturated Oil Filters	_____	60_____	_____

3.5.1 Provide \$4860.00 dollars for managing and disposing of all

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hazardous waste listed in 3.5. Total cost greater or less than above dollar amount when authorized will be the subject of an equitable adjustment.

3.6 Notify the SUPERVISOR at least one working day prior to shipment of hazardous waste for disposal.

3.7 Submit one legible copy, in hard copy or electronic media, of a report identifying type, amount, and disposal cost of waste listed in 3.5 that was removed during the performance of this Job Order to the SUPERVISOR.

3.7.1 The report shall include analysis or other method used to identify the waste and state whether each listed waste was hazardous (with generator assignment), non-hazardous, or did not exist.

3.7.1.1 Chemical analysis shall be accomplished by laboratories with state or EPA approved quality assurance programs.

3.7.2 The contractor shall make an effort to minimize hazardous waste generation by reducing the volume or toxicity by neutralizing, recycling, or otherwise removing it from the requirements of Subtitle C of 2.1 and include a description of such efforts in the report.

3.8 Nothing contained in this Work Item shall relieve the contractor from complying with applicable federal, state, and local laws, codes, ordinances, and regulations, including the obtaining of licenses and permits in connection with hazardous waste handling and disposal in the performance of this contract.

#### 4. NOTES:

4.1 The waste listed in 3.5 is based on the best information available at the time of preparation of the solicitation. Hazardous waste generated during the actual performance of the work may vary in type or amount from waste listed in 3.5 which may result in renegotiation for credit or increase pursuant to Paragraph (b) of 2.4. The contractor is expected to use best management practice to identify and dispose of all hazardous waste. Some of the substances listed in 3.5 may be neutralized, recycled, or otherwise removed from the requirements of Subtitle C of 2.1. Inclusion of these substances in the waste listed in 3.5 does not preclude the contractor from taking action consistent with 2.1 to reduce or eliminate the hazardous constituents of any waste required to be disposed of under the contract in accordance with 2.2. Processes that add hazardous constituents to the bilges may require that bilge water be disposed of as a hazardous waste.

4.1.1 The types and amounts of wastes listed in 3.5 are estimates of waste to be disposed of under this contract as required by 2.4. They are not estimates of the amount of the work involved in generating that waste. The work requirements of each individual Work Item specify the actual work to be accomplished.

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4.2 Hazardous wastes are determined by one or more of the following methods:

4.2.1 Chemical analysis which shows that the material characteristics of ignitability, corrosivity, reactivity, and/or toxicity (Toxicity Characteristic Leachate Procedure - TCLP) exceed the limits for that material in 40 CFR 261.20 Subpart C.

4.2.2 Reference to a Material Safety Data Sheet (MSDS), or

4.2.3 Applying knowledge of the hazardous characteristics of the waste in light of the materials or the process used.

4.3 Asbestos, bilge water, oil/water including sludge, debris and other contaminants, sludge which includes solids and sludge from ballast tanks, CHT tanks, voids, oily waste tanks, fuel ballast tanks, fuel oil tanks, skegs (West coast), PCB's (Maryland), etc., apply only in those states listing them as hazardous waste. When an availability is to be performed in a state where these items are hazardous waste, an estimate of the amount to be generated shall be included in 3.5.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

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COAR:	<u>16-003</u>	PCN:	<u>EDC1-Z301</u> <u>EM01-1305</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>FLAHERTY</u> <u>SULLIVAN</u>

1. SCOPE:

1.1 Title: Underwater Hull; inspect and repair (DRYDOCK)

1.2 Location of Work:

1.2.1 Underwater Hull from Upper Boottop Limits to Keel

1.2.2 Forward Engine Room, 3-29-0-E

1.2.3 Aft Engine Room, 3-36-0-E

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 S9086-CQ-STM-010, Naval Ships' Technical Manual, Chapter 081

2.3 S9086-VD-STM-020/CH-631, Naval Ship's Technical Manual, Chapter 631

2.4 T9074-AS-GIB-010/271, Requirements for Nondestructive Testing Methods

2.5 111-6736914 Rev M, Shell Expansion

2.6 113-6736917 Rev M, Innerbottom Plating

2.7 117-6736916 Rev J, Transverse Sections

2.8 115-6736918 Rev K, Long Girders & Bulkheads

3. REQUIREMENTS:

3.1 Five days prior to drydocking the ship the contractor has the option of cleaning the hull by scrubbing in accordance with 2.2.

3.2 Immediately after drydocking the ship accomplish the following:

SHIP: USS HURRICANE (PC-3)

(I) (G) "HULL CLEANING"

3.2.1 Clean the underwater hull including each sea chest, bow, shafts, stern, appendages and sides up to the boot top free of marine growth. Prepare each surface for inspections in accordance with Paragraphs 631-5.5 and 631-5.5.1 of 2.3 using the hydroblast method.

3.2.2 Contain and dispose of water from hydroblasting and other foreign matter resulting from blasting and cleaning operations and prevent contamination of the air, water and adjacent ships.

(I) (G) "HULL INSPECTION"

3.2.3 Accomplish a visual inspection of the entire underwater hull and surfaces, for structural defects, from keel to the upper boottop limits including each appendage using the criteria in 2.5, as a reference.

3.2.3.1 Obtain information necessary to complete the docking report.

3.2.3.2 Inspect seams, butts, and welds.

3.2.3.3 Inspect for conditions of marked corrosion, erosion, evidence and extent of hull damage and structural defects.

3.2.4 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.2.3 with sketches listing the type, amount and location of structural damage and deterioration to the SUPERVISOR.

3.2.5 Accomplish the requirements of 009-25 of 2.1, for a preliminary air test of the skeg. Test pressure shall be 2 PSIG.

3.2.6 Submit one legible copy, in hard copy or electronic media of a report listing the results of 3.2.5 to the SUPERVISOR, listing exact locations of leaks, cracks and damages found.

(I) (G) "UT SURVEY"

3.3 Accomplish an ultrasonic thickness survey on the underwater hull plating up to the upper boottop limits including the interior and exterior surfaces of skeg, in accordance with 2.4 and the following:

3.3.1 The ultrasonic survey test equipment shall be similar and equal to pulse-echo ultrasonic and oscilloscope type presentation, resonate type is not applicable.

3.3.2 The survey shall be conducted on a total of (150) areas as designated by the SUPERVISOR.

SHIP: USS HURRICANE (PC-3)

3.3.3 Submit one legible copy, in hard copy or electronic media of the ultrasonic survey results to the SUPERVISOR listing the locations of each point inspected in respect to the ship's frame, strakes, distance off centerline, measured thickness of plating, original thickness of plating and percent of deterioration.

3.3.3.1 The thickness of original hull plating is shown on 2.5.

(I) (G) "UT SCAN"

3.3.4 Continuously scan a total of (25) defective areas discovered by the ultrasonic survey in 3.3 and the visual inspection in 3.2.3 to determine the total size and location of the defect.

3.3.4.1 The defective areas shall be designated by the SUPERVISOR.

3.3.5 Reports shall be submitted within 3 days after the ship is drydocked.

3.4 Accomplish known repairs as detailed in paragraphs 3.4.1 through 3.4.3 at locations listed in 1.2. Accomplish in accordance with 2.5 through 2.8, repairs amounting to greater than and / or less than the amounts specified in 3.4.1 through 3.4.3 will be subject to an equitable adjustment.

3.4.1 Remove existing doubler plate and install new, five square feet of underwater hull plating (insert )at frame 36.

3.4.2 Remove existing doubler plate and install new, five square feet of underwater hull plating (insert) at frame 37.

3.4.3 Remove existing doubler plate and install new, five square feet of underwater hull plating (insert) at frame 40.

3.5 Accomplish the following repairs as a result of 3.3, 3.3.3 and as designated by the SUPERVISOR in accordance with 2.5 through 2.8.

3.5.1 Remove existing defective and install new, a total of 40 square feet of keel/hull plating (bilge to skeg void).

3.5.2 Exact locations shall be designated by the SUPERVISOR.

3.5.2.1 The smallest insert plate shall be a minimum of one square foot in area.

3.5.3 Chip and grind surfaces flush and smooth in way of repairs.

3.6 Accomplish the following repairs as determined by the visual inspection, the ultrasonic survey and air test and as designated by the SUPERVISOR. Repairs amounting to greater than and / or less than the amounts specified in 3.5.1 will

SHIP: USS HURRICANE (PC-3)

be subject to an equitable adjustment.

3.6.1 Remove a total of (200) square feet of defective hull plating up to the upper boottop limits.

3.6.1.1 The smallest insert plate shall be a minimum of one foot square in area.

3.6.2 Remove each longitudinal, frame, stiffener, gusset, split pipe fendering and bracket in way of and extending 12 inches beyond hull plating removals.

3.6.3 Vee-out and weld a total of 20 linear feet of splits, cracks and broken welds.

3.6.4 Chip and grind surfaces flush in way of repairs.

3.6.5 Install a total of (50) linear feet of new structural stiffeners of the same configuration as that removed in accordance with 2.5 through 2.8.

3.6.6 Clad weld a total of 30 square feet of hull plating as designated by the SUPERVISOR.

3.6.6.1 Surfaces shall be ground to smooth metal.

3.6.6.2 Fill local pits and grooves with weld metal prior to the application of principal build-up layers.

3.6.7 Clad weld a total of (10) square feet of skeg, struts, rudders, fins and appendages as designated by the SUPERVISOR.

3.6.7.1 Clad weld repairs amounting to less than the amount specified in 3.6.7 shall be subject of an equitable adjustment.

(I) (G) "DOCKING BLOCK SHIFT"

3.6.8 Shift docking blocks to facilitate accomplishment of the structural repairs.

3.7 Accomplish the requirements of 009-12 of 2.1, including Table 2, Columns A and D, Lines One through 7.

3.7.1 Accomplish non-destructive testing in accordance with Line 10.

3.8 Accomplish the requirements of 009-25 of 2.1, for a local air hose test of repaired and welded surfaces. Allowable leakage: None.

3.8.1 Accomplish the requirements of 009-25 of 2.1, for a final air test of skeg. Test pressure shall be 2 PSIG. Hold test pressure for a minimum of ten minutes. Allowable drop in pressure: None.

SHIP: USS HURRICANE (PC-3)

3.9 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of each new and disturbed surface.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.



SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>110-90-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EXSA-0059</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>SULLIVAN</u> <u>FLAHERTY</u>

1. SCOPE:

1.1 Title: ShipAlt PC1-0059K, Hull Girder Enhancement; accomplish

1.2 Location of Work:

1.2.1 Throughout Ship

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 PC-1 CLASS S/A 0059K, Hull Girder Enhancement

2.3 131-5107062 Rev C, Structural and Misc Removal in Way of Hull Girder Enhancement

2.4 506-5107063 Rev D, Piping Mods in Way of Hull Girder Enhancement

2.5 131-5107064 Rev C, Misc Mods in Way of Engine Room Soft Patches Hull Girder Enhancement

2.6 131-5107065 Rev D, Centerline Girder Modification Hull Girder Enhancement

2.7 131-5107066 Rev C, Outboard Engine Casing Hull Girder Enhancement

2.8 671-5107069 Rev B, Misc Stowage & Arrangement Mods in Way of Hull Girder Enhancement

2.9 251-5106671 Rev B, Air Intake Silencer Installation (Fwd Engine Room)

2.10 233-7089235 Rev A, Aft Main Engine Intake Air Silencer Fabrication Details

2.11 252-5106698 Rev A, PC-1 Class AER-0041 Bridge Wing Console Modification

SHIP: USS HURRICANE (PC-3)

- 2.12 085-6736901 Rev H, Misc Construction Sketches
- 2.13 131-6736920 Rev L, Deck Construction Plan
- 2.14 151-6736925 Rev L, Superstructure Details
- 2.15 265-6736979 Rev C, Crankcase Ventilation Piping Arrangement and Details
- 2.16 526-6737047 Rev D, Scuppers & Deck Drains Piping Arr & Details
- 2.17 521-6737060 Rev F, Firemain Piping Arrangement and Details
- 2.18 506-6737064 Rev E, Vents & Sound Tube Details
- 2.19 593-6737065 Rev G, Sewage Piping Arrangement and Details
- 2.20 635-6737102 Rev B, Linings and Insulation Plan and Details
- 2.21 671-6737107 Rev D, Gas Can Storage Rack & Details
- 2.22 631-5106907 Rev B, Ship's Painting Schedule
- 2.23 634-6737122 Rev C, Deck Covering and Details
- 2.24 620-6737127 Rev C, Machinery Valve Label & Warning & Misc Label Plate List
- 2.25 506-7086630 Rev A, Installation Remote Operating Gear Incidental Fuel Tank Upgrade
- 2.26 593-6906874 Rev F, Installation of Vacuum CHT Eductor Supply & Discharge Piping
- 2.27 528-7539962 Rev A, Grey water & Sewage System Piping Hydrostatic Test Incidental to Shipalt 0059K
- 2.28 841-7539869 Rev A, Structural Enhancements Systems Demonstrations Incidental to Shipalt PC1/0059K
- 2.29 DOD-STD-2003, (NAVY) Electric Plant Installation Standard Methods for Surface Ships and Submarines
- 2.30 MIL-STD-1310, Shipboard Bonding, Grounding, and Other Techniques for Electromagnetic Compatibility and Safety

3. REQUIREMENTS:

3.1 Disconnect electrically and mechanically and remove equipment incidental to Hull Girder Enhancement. Record electrical hook-up data.

SHIP: USS HURRICANE (PC-3)

3.1.1 Matchmark, identify and retain chocks, shims, shock mounts, ground straps and sound dampening pads.

3.1.2 Roll back cables to prevent damage during installations.

3.1.2.1 Protect cables and connectors from damage.

3.2 Accomplish removals, modifications, relocations and installations incidental to ShipAlt PC1-0059K, Hull Girder Enhancement in accordance with 2.3 through 2.8 and using 2.9 through 2.26 for guidance.

3.2.1 Template all work from ship.

3.2.2 Chip and grind surfaces flush and smooth in way of removals.

3.3 Accomplish the requirements of 009-12 of 2.1, including Table 2, Columns A and C, Lines One through 7.

3.3.1 Accomplish Non-Destructive testing in accordance with Line 10.

3.3.2 Submit one legible copy, in hard copy or electronic media of a report listing the results of the requirements of 3.3.1 to the SUPERVISOR.

3.4 Accomplish the requirements of 009-12 of 2.1, including Table One, Columns A, B and C, Lines One through 10.

(V)(G) "HYDROSTATIC TEST"

3.5 Accomplish grey water & sewage system piping hydrostatic test incidental to Shipalt 0059K in accordance with 2.27.

(V)(G) "STRUCTURAL ENHANCEMENTS DEMONSTRATIONS"

3.6 Accomplish structural enhancements systems demonstrations incidental to Shipalt PC1/0059K in accordance with 2.28.

3.7 Install new thermal insulation where removed to facilitate structural installations in accordance with 2.8 and 2.20.

3.7.1 Accomplish the requirements of 009-11 of 2.1.

3.8 Reinstall equipment removed in 3.1 in accordance with 2.29. Install retained hardware of 3.1.1 and new CRES fasteners conforming to MIL-S-1222, Type I, Grade 304. Connect equipment using recorded hook-up data of 3.1 and in accordance with 2.29.

3.8.1 Bond and ground equipment in accordance with 2.30.

3.9 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

SHIP: USS HURRICANE (PC-3)

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 123-11-001  
COAR: 16-003 PCN: EM01-Z307  
CMP: NONE  
PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Fuel Oil Tank; inspect (DRYDOCK)

1.2 Location of Work:

1.2.1 Fuel Oil Tank 3-20-1-F

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 111-6736914 Rev M, Shell Expansion

2.3 117-6736916 Rev J, Transverse Sections

2.4 113-6736917 Rev M, Innerbottom Plating

2.5 115-6736918 Rev K, Longitudinal Girders & Bulkheads

2.6 122-6736919 Rev H, Watertight Bulkheads

3. REQUIREMENTS:

(I) (G) "TANK INSPECTION"

3.1 Accomplish a visual inspection of the fuel oil tank listed in 1.2 including inspection of manhole covers and bolting hardware, sounding tubes, structural plating, stiffeners and paint coatings for deformation, damage, corrosion, cracks, pinholes, pitting and structural discrepancies, using 2.2 through 2.6 for guidance for locations and structural requirements.

3.1.1 Accomplish the requirements of 009-25 of 2.1 for air test of the fuel oil tank listed in 1.2. Test pressure shall be 2 PSIG, using clean dry air. Hold test pressure for a minimum of ten minutes. Allowable drop in pressure: None.

3.1.2 Submit one legible copy, in hard copy or electronic media, of a

SHIP: USS HURRICANE (PC-3)

report listing the results of the requirements of 3.1 and 3.1.1 to the SUPERVISOR, noting specific locations and sizes of discrepancies and recommendations for repairs.

3.2 Accomplish the requirements of 009-32 of 2.1 for cleaning and painting new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 123-11-002  
COAR: 16-003 PCN: EM01-Z308  
CMP: NONE  
PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Fuel Oil Tank; inspect (DRYDOCK)

1.2 Location of Work:

1.2.1 Fuel Oil Tank 3-20-2-F

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 111-6736914 Rev M, Shell Expansion

2.3 117-6736916 Rev J, Transverse Sections

2.4 113-6736917 Rev M, Innerbottom Plating

2.5 115-6736918 Rev K, Longitudinal Girders & Bulkheads

2.6 122-6736919 Rev H, Watertight Bulkheads

3. REQUIREMENTS:

(I) (G) "TANK INSPECTION"

3.1 Accomplish a visual inspection of the fuel oil tank listed in 1.2 including inspection of manhole covers and bolting hardware, sounding tubes, structural plating, stiffeners and paint coatings for deformation, damage, corrosion, cracks, pinholes, pitting and structural discrepancies, using 2.2 through 2.6 for guidance for locations and structural requirements.

3.1.1 Accomplish the requirements of 009-25 of 2.1 for air test of the fuel oil tank listed in 1.2. Test pressure shall be 2 PSIG, using clean dry air. Hold test pressure for a minimum of ten minutes. Allowable drop in pressure: None.

3.1.2 Submit one legible copy, in hard copy or electronic media, of a

SHIP: USS HURRICANE (PC-3)

report listing the results of the requirements of 3.1 and 3.1.1 to the SUPERVISOR, noting specific locations and sizes of discrepancies and recommendations for repairs.

3.2 Accomplish the requirements of 009-32 of 2.1 for cleaning and painting new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.



SHIP: USS HURRICANE (PC-3)

ITEM NO: 123-11-003

COAR: 16-003

PCN: EM01-Z309

CMP: NONE

PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Fuel Oil Tank; inspect (DRYDOCK)

1.2 Location of Work:

1.2.1 Fuel Oil Tank 3-43-0-F

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 111-6736914 Rev M, Shell Expansion

2.3 117-6736916 Rev J, Transverse Sections

2.4 113-6736917 Rev M, Innerbottom Plating

2.5 115-6736918 Rev K, Longitudinal Girders & Bulkheads

2.6 122-6736919 Rev H, Watertight Bulkheads

3. REQUIREMENTS:

(I) (G) "TANK INSPECTION"

3.1 Accomplish a visual inspection of the fuel oil tank listed in 1.2 including inspection of manhole covers and bolting hardware, sounding tubes, structural plating, stiffeners and paint coatings for deformation, damage, corrosion, cracks, pinholes, pitting and structural discrepancies, using 2.2 through 2.6 for guidance for locations and structural requirements.

3.1.1 Accomplish the requirements of 009-25 of 2.1 for air test of the fuel oil tank listed in 1.2. Test pressure shall be 2 PSIG, using clean dry air. Hold test pressure for a minimum of ten minutes. Allowable drop in pressure: None.

3.1.2 Submit one legible copy, in hard copy or electronic media, of a

SHIP: USS HURRICANE (PC-3)

report listing the results of the requirements of 3.1 and 3.1.1 to the SUPERVISOR, noting specific locations and sizes of discrepancies and recommendations for repairs.

3.2 Accomplish the requirements of 009-32 of 2.1 for cleaning and painting new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3)

ITEM NO: 123-11-004

COAR: 16-003

PCN: EM01-Z310

CMP: NONE

PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Fuel Oil Tank; inspect (DRYDOCK)

1.2 Location of Work:

1.2.1 Fuel Oil Tank 3-43-1-F

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 111-6736914 Rev M, Shell Expansion

2.3 117-6736916 Rev J, Transverse Sections

2.4 113-6736917 Rev M, Innerbottom Plating

2.5 115-6736918 Rev K, Longitudinal Girders & Bulkheads

2.6 122-6736919 Rev H, Watertight Bulkheads

3. REQUIREMENTS:

(I) (G) "TANK INSPECTION"

3.1 Accomplish a visual inspection of the fuel oil tank listed in 1.2 including inspection of manhole covers and bolting hardware, sounding tubes, structural plating, stiffeners and paint coatings for deformation, damage, corrosion, cracks, pinholes, pitting and structural discrepancies, using 2.2 through 2.6 for guidance for locations and structural requirements.

3.1.1 Accomplish the requirements of 009-25 of 2.1 for air test of the fuel oil tank listed in 1.2. Test pressure shall be 2 PSIG, using clean dry air. Hold test pressure for a minimum of ten minutes. Allowable drop in pressure: None.

3.1.2 Submit one legible copy, in hard copy or electronic media, of a

SHIP: USS HURRICANE (PC-3)

report listing the results of the requirements of 3.1 and 3.1.1 to the SUPERVISOR, noting specific locations and sizes of discrepancies and recommendations for repairs.

3.2 Accomplish the requirements of 009-32 of 2.1 for cleaning new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 123-11-005  
COAR: 16-003 PCN: EM01-Z311  
CMP: NONE  
PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Fuel Oil Tank; inspect (DRYDOCK)

1.2 Location of Work:

1.2.1 Fuel Oil Tank 3-43-2-F

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 111-6736914 Rev M, Shell Expansion

2.3 117-6736916 Rev J, Transverse Sections

2.4 113-6736917 Rev M, Innerbottom Plating

2.5 115-6736918 Rev K, Longitudinal Girders & Bulkheads

2.6 122-6736919 Rev H, Watertight Bulkheads

3. REQUIREMENTS:

(I) (G) "TANK INSPECTION"

3.1 Accomplish a visual inspection of the fuel oil tank listed in 1.2 including inspection of manhole covers and bolting hardware, sounding tubes, structural plating, stiffeners and paint coatings for deformation, damage, corrosion, cracks, pinholes, pitting and structural discrepancies, using 2.2 through 2.6 for guidance for locations and structural requirements.

3.1.1 Accomplish the requirements of 009-25 of 2.1 for air test of the fuel oil tank listed in 1.2. Test pressure shall be 2 PSIG, using clean dry air. Hold test pressure for a minimum of ten minutes. Allowable drop in pressure: None.

3.1.2 Submit one legible copy, in hard copy or electronic media, of a

SHIP: USS HURRICANE (PC-3)

report listing the results of the requirements of 3.1 and 3.1.1 to the SUPERVISOR, noting specific locations and sizes of discrepancies and recommendations for repairs.

3.2 Accomplish the requirements of 009-32 of 2.1 for cleaning new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 123-14-001  
COAR: 16-003 PCN: EM01-Z314  
CMP: NONE  
PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Potable Water Tank; inspect, repair and preserve (DRYDOCK)

1.2 Location of Work:

1.2.1 Potable Water Tank 3-14-1-W

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 115-6736918 Rev K, Longitudinal Girders & Bulkheads

2.3 111-6736914 Rev M, Shell Expansion

2.4 122-6736919 Rev H, Watertight Bulkheads

2.5 131-6736920 Rev L, Deck Construction Plan

3. REQUIREMENTS:

(I) (G) "VISUAL INSPECTION"

3.1 Accomplish a visual inspection of the potable water tank listed in 1.2, including inspection of manhole cover plates and bolting hardware, sounding tube, structural plating and stiffeners for deformation, damage, corrosion, paint coatings, cracks, pinholes, pitting and structural discrepancies using 2.2 through 2.5 for guidance.

3.1.1 Accomplish the requirements of 009-25 of 2.1, for preliminary air test of potable water tank listed in 1.2. Test pressure shall be 2 PSIG, using clean dry air.

3.1.2 Submit one legible copy, in hard copy or electronic media, of a report listing the results of the requirements of 3.1 and 3.1.1 to the SUPERVISOR, noting specific locations and sizes of discrepancies and recommendations for repairs.

SHIP: USS HURRICANE (PC-3)

3.2 Accomplish repairs in potable water tank listed in 1.2, by removing existing defective and installing new, a total of (4) square feet of plating, (2) linear feet of structural stiffeners and welding (2) linear feet of cracks and defective welds as determined by the results of 3.1 and 3.1.1 and as designated by the SUPERVISOR.

3.2.1 Exact areas of repairs shall be designated by the SUPERVISOR.

3.2.2 The minimum size for insert plates shall be one square foot in area.

3.2.3 Do not cut any frames or main structural members without prior approval of the SUPERVISOR.

3.2.4 Replacement material shall be in accordance with 2.2 through 2.5.

3.3 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column A, Lines One through 7.

3.4 Accomplish the requirements of 009-32 of 2.1, including Table 4, Lines One through 5, Columns A through G, for blasting and painting potable water tank listed in 1.2.

3.5 Accomplish the requirements of 009-32 of 2.1, for cleaning and painting new and disturbed surfaces.

3.6 Accomplish the requirements of 009-25 of 2.1, for an air test of potable water tank listed in 1.2. Test pressure shall be 2 PSIG, using clean dry air. Hold test pressure for a minimum of ten minutes. Allowable drop in pressure: None.

3.6.1 Submit one legible copy, in hard copy or electronic media, of a report listing the results of the requirements of 3.6 to the SUPERVISOR.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:



SHIP: USS HURRICANE (PC-3)

1. None.

SHIP: USS HURRICANE (PC-3)

ITEM NO: 123-14-002

COAR: 16-003

PCN: EM01-Z315

CMP: NONE

PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Potable Water Tank; inspect, repair and preserve (DRYDOCK)

1.2 Location of Work:

1.2.1 Potable Water Tank 3-14-2-W

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 115-6736918 Rev K, Longitudinal Girders & Bulkheads

2.3 111-6736914 Rev M, Shell Expansion

2.4 122-6736919 Rev H, Watertight Bulkheads

2.5 131-6736920 Rev L, Deck Construction Plan

3. REQUIREMENTS:

(I) (G) "VISUAL INSPECTION"

3.1 Accomplish a visual inspection of the potable water tank listed in 1.2, including inspection of manhole cover plates and bolting hardware, sounding tube, structural plating and stiffeners for deformation, damage, corrosion, paint coatings, cracks, pinholes, pitting and structural discrepancies using 2.2 through 2.5 for guidance.

3.1.1 Accomplish the requirements of 009-25 of 2.1, for preliminary air test of potable water tank listed in 1.2. Test pressure shall be 2 PSIG, using clean dry air.

3.1.2 Submit one legible copy, in hard copy or electronic media, of a report listing the results of the requirements of 3.1 and 3.1.1 to the SUPERVISOR, noting specific locations and sizes of discrepancies and recommendations for repairs.

SHIP: USS HURRICANE (PC-3)

3.2 Accomplish repairs in potable water tank listed in 1.2, by removing existing defective and installing new, a total of (4) square feet of plating, (2) linear feet of structural stiffeners and welding (2) linear feet of cracks and defective welds as determined by the results of 3.1 and 3.1.1 and as designated by the SUPERVISOR.

3.2.1 Exact areas of repairs shall be designated by the SUPERVISOR.

3.2.2 The minimum size for insert plates shall be one square foot in area.

3.2.3 Do not cut any frames or main structural members without prior approval of the SUPERVISOR.

3.2.4 Replacement material shall be in accordance with 2.2 through 2.5.

3.3 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column A, Lines One through 7.

3.4 Accomplish the requirements of 009-32 of 2.1, including Table 4, Lines One through 5, Columns A through G, for blasting and painting potable water tank listed in 1.2.

3.5 Accomplish the requirements of 009-32 of 2.1, for cleaning and painting new and disturbed surfaces.

3.6 Accomplish the requirements of 009-25 of 2.1, for an air test of potable water tank listed in 1.2. Test pressure shall be 2 PSIG, using clean dry air. Hold test pressure for a minimum of ten minutes. Allowable drop in pressure: None.

3.6.1 Submit one legible copy, in hard copy or electronic media, of a report listing the results of the requirements of 3.6 to the SUPERVISOR.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

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1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 123-17-001  
COAR: 16-003 PCN: EM01-Z319  
CMP: NONE  
PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Contaminated Oil Tank; inspect (DRYDOCK)

1.2 Location of Work:

1.2.1 Contaminated Oil Tank (3-39-0-F)

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 111-6736914 Rev M, Shell Expansion

2.3 117-6736916 Rev J, Transverse Sections

2.4 113-6736917 Rev M, Innerbottom Plating

2.5 115-6736918 Rev K, Longitudinal Girders & Bulkheads

2.6 122-6736919 Rev H, Watertight Bulkheads

3. REQUIREMENTS:

(I) (G) "TANK INSPECTION"

3.1 Accomplish a visual inspection of the contaminated oil tank listed in 1.2 including inspection and manhole covers and bolting hardware, sounding tubes, structural plating and stiffeners for deformation, damage, corrosion, cracks, pinholes, pitting and structural discrepancies using 2.2. through 2.6 for guidance for locations and structural requirements.

3.1.1 Accomplish the requirements of 009-25 of 2.1 for a preliminary air test of the contaminated oil tank listed in 1.2. Test pressure shall be 2 PSIG, using clean dry air.

3.1.2 Submit one legible copy, in hard copy or electronic media, of a report listing the results of the requirements of 3.1 and 3.1.1 to the

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SUPERVISOR, noting specific locations and sizes of discrepancies and recommendations for repairs.

3.2 Accomplish the requirements of 009-25 of 2.1 for air test of contaminated oil tank listed in 1.2. Test pressure shall be 2 PSIG, using clean dry air. Hold test pressure for a minimum of ten minutes. Allowable drop in pressure: None.

3.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing the results of the requirements of 3.2 to the SUPERVISOR.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>123-21-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EDC1-Z330</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>SULLIVAN</u>

1. SCOPE:

1.1 Title: Peak Void; inspect and repair (DRYDOCK)

1.2 Location of Work:

1.2.1 Anchor Windlass Room (3-0-0-Q)

1.2.2 Chain Locker (2-5-0-Q)

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 111-6736914 Rev M, Shell Expansion

2.3 117-6736916 Rev J, Transverse Sections

2.4 113-6736917 Rev M, Innerbottom Plating

2.5 115-6736918 Rev K, Longitudinal Girders & Bulkheads

2.6 122-6736919 Rev H, Watertight Bulkheads

2.7 131-6736920 Rev L, Deck Construction Plan

2.8 Systems and Specifications, Steel Structures Painting Manual, Volume  
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3. REQUIREMENTS:

3.1 Accomplish a visual inspection of the peak void and chain locker listed in 1.2, including inspection of manhole cover plates and bolting hardware, sounding tubes, structural plating and stiffeners for deformation, damage, corrosion, cracks, pinholes, pitting and structural discrepancies, using 2.2 through 2.7 for guidance.

3.1.1 Accomplish the requirements of 009-25 of 2.1, for preliminary air

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test of peak void and chain locker listed in 1.2. Test pressure shall be 2 PSIG, using clean dry air.

3.1.2 Submit one legible copy, in hard copy or electronic media, of a report listing the results of the requirements of 3.1 and 3.1.1 to the SUPERVISOR, noting specific locations and sizes of discrepancies and recommendations for repairs.

(I) (G) "PRESERVE"

3.2 Power tool clean to bare metal, (50) square feet of peak void surfaces to include stiffener surfaces beneath access ladder. Accomplish the requirements of Surface Preparation Specification SSPC-SP-11 of 2.8. Exact surfaces to be cleaned and preserved shall be designated by the SUPERVISOR.

3.2.1 Accomplish the requirements of 009-32 of 2.1, including Table 4, Line 38, Columns B through D for preservation of surfaces prepared in 3.2.

3.3 Accomplish the requirements of 009-32 of 2.1, for cleaning and preservation of new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.



SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>163-11-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EDC1-Z324</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>FLAHERTY</u>

1. SCOPE:

1.1 Title: Sea Chests; inspection and repair (DRYDOCK)

1.2 Location of Work:

1.2.1 Underwater Hull

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 163-6736926 Rev F, Main Sea Chest Details

2.3 163-6736927 Rev F, Aux. Sea Chest Arrgt. & Details

2.4 T9074-AS-GIB-010/271, Requirements for Nondestructive Testing Methods

2.5 MIL-STD-2035, Nondestructive Testing Acceptance Criteria

3. REQUIREMENTS:

3.1 Remove each strainer, baffle and protective bar from each sea chest and retain, using 2.2 and 2.3 for locations and configuration.

(I) (G) "SEA CHEST INSPECTIONS"

3.1.1 Accomplish a visual inspection of the sea chests for defects, corrosion, damage and structural deterioration in accordance with 2.2 and 2.3.

3.1.1.1 Obtain information necessary to complete the docking report.

3.1.2 Inspect seams, butts, and welds.

3.1.3 Inspect underwater zinc protectors located within each sea chest for deterioration and damage.

3.1.4 Inspect each sleeve, exposed valve surface and fastening device

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for evidence and extent of corrosion, erosion and damage.

3.1.5 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.1 through 3.1.4 with sketches listing the type, amount and location of structural damage and deterioration to the SUPERVISOR.

(I) (G) "UT SURVEY"

3.2 Accomplish an ultrasonic thickness survey on the sea chest surfaces in accordance with 2.4 and 2.5 and the following:

3.2.1 The ultrasonic survey test equipment shall be similar and equal to pulse-echo ultrasonic and oscilloscope type presentation, resonate type is not applicable.

3.2.2 The survey shall be conducted on a total of (15) areas as designated by the SUPERVISOR.

3.2.3 Submit one legible copy, in hard copy or electronic media of the ultrasonic survey results to the SUPERVISOR listing the locations of each point inspected in respect to the ship's frame, strakes, distance off centerline, measured thickness of plating, original thickness of plating and percent of deterioration.

3.2.3.1 The thickness of original plating is shown on 2.2 and 2.3.

3.2.4 Reports shall be submitted within 3 days after the ship is drydocked.

3.3 Accomplish the following repairs as determined by the visual inspection and the ultrasonic survey and as designated by the SUPERVISOR.

3.3.1 Remove a total of (5) square feet of wasted plate.

3.3.2 Vee-out and weld a total of (5) linear feet of splits, cracks and broken welds.

3.3.2.1 Chip and grind surfaces flush in way of repairs.

3.3.3 Install new material of the same configuration as that removed in accordance with 2.2 and 2.3.

3.3.4 Clad weld a total of (10) square feet of wasted plate.

3.3.4.1 Surfaces shall be ground to smooth metal.

(I) (G) "ZINC REMOVALS"

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3.4 Remove zinc anodes from sea chest interiors and install new anodes and hardware in accordance with 2.2 and 2.3. Ensure that studs are paint and debris free prior to installation of zincs.

3.5 Install each retained serviceable strainer, baffle and protective bar on each sea chest using new stainless steel fasteners in accordance with 2.2 and 2.3. Tack weld nuts to strainers and install new cotter pins through the protective bar fasteners in accordance with 2.2 and 2.3.

3.6 Install a total of (5) new strainers, baffles and protective bars in place of those damaged, deteriorated and missing of the same type, size and design as those adjacent, as designated by the SUPERVISOR.

(I) (G) "BAR STRAINER INSTALLATIONS"

3.6.1 Secure each new strainer, baffle and protective bar in each sea chest using new stainless steel fasteners in accordance with 2.2 and 2.3. Tack weld nuts to strainers and install new cotter pins through the protective bar fasteners in accordance with 2.2 and 2.3.

3.7 Accomplish the requirements of 009-12 of 2.1, including Table 2, Columns A and D, Lines One through 7.

3.8 Accomplish the requirements of 009-32 of 2.1 for surface preparation and preservation of each new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>164-11-001</u>
COAR:	<u>16-003</u>	PCN:	<u>WD01-P116</u> <u>WD01-P215</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>FLAHERTY</u> <u>SULLIVAN</u>

1. SCOPE:

1.1 Title: Ballistic Plating and Handrail; repair

1.2 Location of Work:

1.2.1 Main Deck, Frames 15-24, Port and Starboard

1.2.2 Main Deck, Frame 21, Port

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 164-6736922 Rev F, Ballistic Plating & Details

2.3 612-6737093 Rev D, Handrail and Grabrail Details

2.4 167-6736933 Rev E, Flush Hatch Details

2.5 151-6736925 Rev L, Superstructure Details

3. REQUIREMENTS:

3.1 Accomplish the removal of the entire ballistic plating system excluding 1 1/2" x 1 1/2" x 1/4" angle bar (Item number 6 of 2.2), at location listed in 1.2.1. Accomplish removals using 2.2 through 2.5 as guidance for locations.

3.1.1 Retain all ballistic plating for inspection and reinstallation at completion of repairs.

(I)(G) "VISUAL INSPECTION"

3.2 Accomplish a visual inspection of the entire ballistic plating system for structural damage, corrosion, erosion and deterioration. Visual inspection shall also include the perimeter of port and starboard deck house sides covered

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by the installation of the ballistic plating.

3.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.2, listing the type, amount and location of structural damage, deterioration, and recommendations for repairs, to the SUPERVISOR.

3.3 Provide 5 mandays of labor and 500 dollars of material to accomplish repairs as a result of 3.2.1, when directed by the SUPERVISOR. Total cost greater or less than above manday and dollar amounts when authorized will be the subject of an equitable adjustment.

3.3.1 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column C, Lines One through 7.

3.3.1.1 Accomplish nondestructive testing in accordance with Line 10.

(V)(G) "WATER HOSE TEST"

3.4 Accomplish the requirements of 009-25 of 2.1, for the local water hose test of exterior deck house boundaries covered by ballistic plating system. Allowable leakage: None.

3.4.1 Submit one legible copy, in hard copy or electronic media, of a report listing the results of 3.4 to the SUPERVISOR.

3.5 Accomplish known repairs at location listed in 1.2.2, as detailed in 3.5.1 in accordance with 2.3.

3.5.1 Remove existing damaged handrail.

3.5.1.1 Straighten handrail and reinstall were removed in 3.5.1, using new securing hardware.

3.6 Reinstall repaired ballistic plating and handrail where removed in 3.1 and 3.5.1 using new gaskets and securing hardware. Accomplish in accordance with 2.2 through 2.5.

3.7 Accomplish the requirements of 009-32 of 2.1, for new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL(GFM):

5.1 LLTM:

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1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 167-85-001  
COAR: 16-003 PCN: EXTY-0071  
CMP: NONE  
PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: PC1 Class AER-0071E, Manhole Replacement Incidental to Anchor Windlass; accomplish

1.2 Location of Work:

1.2.1 Main Deck Frames 6-7, Port

1.2.2 Anchor Windlass Room (3-0-0-V)

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 167-7291703 Rev A, Manhole Replacement Incid to Anchor Windlass

2.3 167-6736932 Rev L, Manhole Details

2.4 620-6737126 Rev E, Compartment and Access Plan

2.5 131-6736920 Rev L, Deck Construction Plan

2.6 PC1 CLASS ALTERATION-EQUIVALENT-TO-A-REPAIR, AER-0071E, Manhole Replacement Incid Anchor Windlass

2.7 634-6737122 Rev C, Deck Covering and Details

3. REQUIREMENTS:

3.1 Accomplish removals, modifications and installations incidental to PC1 Class AER-0071E, Manhole Replacement Incidental to Anchor Windlass at location listed in 1.2.1 in accordance with 2.2 through 2.6.

3.1.1 Install gasket conforming to ZZ-R-765 vice what is identified for Item Number 11 in 2.3.

3.2 Accomplish the requirements of 009-12 of 2.1, including Table 2,

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Column(s) A and D, Lines One through 7.

3.2.1 Accomplish nondestructive testing in accordance with Line 10.

3.3 With manhole installed, accomplish the requirements of 009-25 of 2.1, for air test of space listed in 1.2.2. Test pressure shall be 2 PSIG. Hold test pressure for a minimum of ten minutes. Allowable drop in pressure: None.

3.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.3 to the SUPERVISOR.

3.4 Accomplish the requirements of 009-32 of 2.1, and 2.7, for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.



SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>171-11-001</u>
COAR:	<u>16-003</u>	PCN:	<u>OP01-Z330</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>SULLIVAN</u> <u>MCCUNE</u>

1. SCOPE:

1.1 Title: Mast; inspect, repair and preserve

1.2 Location of Work:

1.2.1 Mast

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 171-6736937 Rev K, Mast Construction

2.3 612-6737093 Rev O, Handrail and Grabrail Details

2.4 T9074-AS-GIB-010/271, Requirements for Nondestructive Testing Methods

2.5 MIL-STD-2035, Nondestructive Testing Acceptance Criteria

2.6 631-6737118 Rev M, Ship's Painting Schedule

2.7 Systems and Specifications, Steel Structures Painting Manual, Volume  
2

3. REQUIREMENTS:

3.1 Accomplish a visual inspection of mast surfaces including stubmast, platforms, shrouds, foundations, supports, rails, safety climb, ladders, steps, attachments and yardarms for structural damage, cracks, corrosion, and deformation using 2.2 and 2.3 for locations and guidance.

3.1.1 Accomplish liquid penetrant testing on a total of (10) suspect areas showing cracking or corrosion, in accordance with 2.4 and 2.5.

3.1.2 Submit one legible copy, in hard copy or electronic media, of a report noting the results of 3.1 and 3.1.1 to the SUPERVISOR, listing the

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locations of each point inspected and each point tested.

3.2 Accomplish the following repairs as determined by the visual inspection and liquid penetrant testing and as designated by the SUPERVISOR.

3.2.1 Remove a total of (5) square feet of damaged plate.

3.2.2 Vee-out and weld a total of (10) linear feet of splits, cracks and defective welds.

3.2.2.1 Chip and grind surfaces flush in way of repairs.

3.2.3 Install new material of the same configuration as that removed in accordance with 2.2 and 2.3.

3.3 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column A and C, Lines One through 7.

3.3.1 Accomplish nondestructive testing in accordance with Line 10.

3.4 Spot power tool clean 15 square feet of the mast and mast deck surfaces to clean bare metal at areas designated by the SUPERVISOR. Accomplish the requirements of Surface Preparation Specification SSPC-SP-3 of 2.7.

3.5 Accomplish the requirements of 2.6 and 009-32 of 2.1, including Table 2, Line 16, Column F for areas cleaned in 3.4 and apply final coat to entire mast and mast deck surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 233-11-001  
COAR: 16-003 PCN: EM01-P111  
CMP: NONE  
PLANNER: PFANTZ  
SULLIVAN

1. SCOPE:

1.1 Title: Main Propulsion Diesel Engine Coolers; flush

1.2 Location of Work:

1.2.1 Forward Engine Room (3-29-O-E)

1.3 Identification:

1.3.1 Quantity (One), No. One, Main Propulsion Diesel Engine Fresh Water Cooler Mfr-Serck Transfer Mfr Dwg-44765-1081 Mfr ID 44765-1081 714 Tubes - Straight APL 039990096L

1.3.2 Quantity (One), No. One, Main Propulsion Diesel Engine Air Charge Heater/Cooler Mfr Id OD30945/Std

1.3.3 Quantity (One), No. One, Main Propulsion Diesel Engine Transmission Lube Oil Cooler Mfr-Serck Transfer Mfr Dwg-B13-2Z-05 Mfr Id B13-2Z-05 Type P130 2-Pass Apl 039990108L

1.3.4 Quantity (One), No. One, Main Propulsion Diesel Engine Lube Oil Cooler FL Mfr-Serck Heat Transfer Mfr DWG-44323-5301 Mfr Id-44323-5301 Capacity-18500 Gpm (Water), 15000 Gph (Oil) 386 Tubes-Straight Apl 0399901011

1.3.5 Quantity (One), No. One, Main Propulsion Diesel Engine Fuel Oil Return Cooler FL Mfr-Serck Heat Transfer Mfr DWG-45315-1041 Mfr Id-45315-1041 Capacity-120 Gph (Fuel Oil), 600 Gph (Sea Water) Apl 039990098L

2. REFERENCES:

2.1 Standard Items

2.2 S9233-E1-MMC-010, Technical Manual For Paxman Valenta (RP200) Diesel Engine

2.3 S9233-E1-MMC-020, Technical Manual For Paxman Valenta (RP200) Diesel Engine

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- 2.4 S9233-E1-MMC-030, Technical Manual For Paxman Valenta (RP200) Diesel Engine
- 2.5 S9241-CH-MMA-010, Technical Manual For Marine Gearbox Model WVS2232
- 2.6 256-6736971 Rev G, Main Engine Sea Water Cooling Sys Arrangement and Details
- 2.7 S9086-GX-STM-030, Chapter 220 V3, Corrosion and Contamination Control For Diesel Engine Cooling Water Systems

3. REQUIREMENTS:

3.1 Accomplish the requirements of 009-09 of 2.1, for flushing the sea water side of the coolers listed in 1.3 with RYDLYME or equal to remove water scale, lime, mud, rust and other water formed deposits, using 2.2 through 2.6 for guidance.

3.2 Accomplish the requirements of 009-90 of 2.1.

3.2.1 Provide the services of a Q.E.D systems Inc. (Marine Industrial Group) technical representative or equal to provide on-site technical assistance, parts, testing, special tools and guidance to accomplish a flush.

3.3 Install protective covering and protect ships equipment, components and electrical cables during work accomplished in this work item. Remove protective covering upon completion of work.

(V) "FLUSH"

3.4 Accomplish a flush of coolers listed in 1.3, in accordance with approved procedure in 3.1, using 2.2. through 2.6 for guidance.

(V) "VERIFY CLEANLINESS"

3.4.1 Verify cleanliness of system for sea water side of the coolers.

3.4.1.1 Water used for final flush shall meet the requirements of paragraph 220-42.1 of 2.7.

3.4.2 Continually inspect system being flushed for leaks and human or material hazards.

3.5 Remove jumpers, temporary strainers, blanks and other fittings and restore system to its original configuration using new gaskets and flange fasteners, in accordance with 2.2 through 2.6.

3.5.1 Restore mating surfaces exposed by disassembly and removal. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

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3.6 Remove existing and install new zinc protector rods and protector rod plug O-rings and seals in each cooler listed in 1.3, in accordance with 2.2 through 2.4. Material shall conform to the specifications of 2.2 through 2.4.

3.7 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation new and disturbed surfaces.

(V) (G) "OPERATIONAL TEST"

3.8 Verify satisfactory operation of the coolers and piping system during dock and sea trials.

3.8.1 Allowable leakage at new and disturbed joints: none

3.8.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.8 to the SUPERVISOR.

4. NOTES:

4.1 Known Source to provide technical assistance, parts, testing, special tools and guidance. Q.E.D. Systems, Inc. Marine Industrial Service Group 1330 30TH Street, Suite D San Diego, CA 92154-3434 POC: John Slippen 619-424-3225 Ext 103 Ed Zazin 619-424-3225 Ext 102

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 233-12-001  
COAR: 16-003 PCN: EM02-P104  
CMP: NONE  
PLANNER: PFANTZ  
SULLIVAN

1. SCOPE:

1.1 Title: Main Propulsion Diesel Engine Coolers; flush

1.2 Location of Work:

1.2.1 Aft Engine Room (3-36-O-E)

1.3 Identification:

1.3.1 Quantity (One), No. 2, Main Propulsion Diesel Engine Fresh Water Cooler Mfr-Serck Transfer Mfr Dwg-44765-1081 Mfr ID 44765-1081 714 Tubes - Straight APL 039990096L

1.3.2 Quantity (One), No. 2, Main Propulsion Diesel Engine Air Charge Heater/Cooler Mfr Id OD30945/Std

1.3.3 Quantity (One), No. 2, Main Propulsion Diesel Engine Transmission Lube Oil Cooler Mfr-Serck Transfer Mfr Dwg-B13-2Z-05 Mfr Id B13-2Z-05 Type P130 2-Pass Apl 039990108L

1.3.4 Quantity (One), No. 2, Main Propulsion Diesel Engine Lube Oil Cooler FL Mfr-Serck Heat Transfer Mfr DWG-44323-5301 Mfr Id-44323-5301 Capacity-18500 Gpm (Water), 15000 Gph (Oil) 386 Tubes-Straight Apl 0399901011

1.3.5 Quantity (One), No. 2, Main Propulsion Diesel Engine Fuel Oil Return Cooler FL Mfr-Serck Heat Transfer Mfr DWG-45315-1041 Mfr Id-45315-1041 Capacity-120 Gph (Fuel Oil), 600 Gph (Sea Water) Apl 039990098L

2. REFERENCES:

2.1 Standard Items

2.2 S9233-E1-MMC-010, Technical Manual For Paxman Valenta (RP200) Diesel Engine

2.3 S9233-E1-MMC-020, Technical Manual For Paxman Valenta (RP200) Diesel Engine

SHIP: USS HURRICANE (PC-3)

- 2.4 S9233-E1-MMC-030, Technical Manual For Paxman Valenta (RP200) Diesel Engine
- 2.5 S9241-CH-MMA-010, Technical Manual For Marine Gearbox Model WVS2232
- 2.6 256-6736971 Rev G, Main Engine Sea Water Cooling Sys Arrangement and Details
- 2.7 S9086-GX-STM-030, Chapter 220 V3, Corrosion and Contamination Control For Diesel Engine Cooling Water Systems

3. REQUIREMENTS:

3.1 Accomplish the requirements of 009-09 of 2.1, for flushing the sea water side of the coolers listed in 1.3 with RYDLYME or equal to remove water scale, lime, mud, rust and other water formed deposits, using 2.2 through 2.6 for guidance.

3.2 Accomplish the requirements of 009-90 of 2.1.

3.2.1 Provide the services of a Q.E.D systems Inc. (Marine Industrial Group) technical representative or equal to provide on-site technical assistance, parts, testing, special tools and guidance to accomplish a flush.

3.3 Install protective covering and protect ships equipment, components and electrical cables during work accomplished in this work item. Remove protective covering upon completion of work.

(V) "FLUSH"

3.4 Accomplish a flush of coolers listed in 1.3, in accordance with approved procedure in 3.1, using 2.2. through 2.6 for guidance.

(V) "VERIFY CLEANLINESS"

3.4.1 Verify cleanliness of system for sea water side of the coolers.

3.4.1.1 Water used for final flush shall meet the requirements of paragraph 220-42.1 of 2.7.

3.4.2 Continually inspect system being flushed for leaks and human or material hazards.

3.5 Remove jumpers, temporary strainers, blanks and other fittings and restore system to its original configuration using new gaskets and flange fasteners, in accordance with 2.2 through 2.6.

3.5.1 Restore mating surfaces exposed by disassembly and removal. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

SHIP: USS HURRICANE (PC-3)

3.6 Remove existing and install new zinc protector rods and protector rod plug O-rings and seals in each cooler listed in 1.3, in accordance with 2.2 through 2.4. Material shall conform to the specifications of 2.2 through 2.4.

3.7 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation new and disturbed surfaces.

(V) (G) "OPERATIONAL TEST"

3.8 Verify satisfactory operation of the coolers and piping system during dock and sea trials.

3.8.1 Allowable leakage at new and disturbed joints: none

3.8.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.8 to the SUPERVISOR.

4. NOTES:

4.1 Known Source to provide technical assistance, parts, testing, special tools and guidance. Q.E.D. Systems, Inc. Marine Industrial Service Group 1330 30TH Street, Suite D San Diego, CA 92154-3434 POC: John Slippen 619-424-3225 Ext 103 Ed Zazin 619-424-3225 Ext 102

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.



SHIP: USS HURRICANE (PC-3) ITEM NO: 233-13-001  
COAR: 16-003 PCN: EM02-Z434  
CMP: NONE  
PLANNER: PFANTZ  
SULLIVAN

1. SCOPE:

1.1 Title: Main Propulsion Diesel Engine; replace

1.2 Location of Work:

1.2.1 Aft Engine Room (3-36-0-E)

1.3 Identification:

1.3.1 Quantity (One): No. 3 Main Propulsion Diesel Engine, Mfr:  
Paxman Diesels LTD, Model: 16RP200CM, 3500 BHP, 16 Cylinder, 4  
Stroke, 197mm Bore, 216mm Stroke, 1500 RPM, APL 667800007L

2. REFERENCES:

2.1 Standard Items

2.2 233-7445061, Main Propulsion Diesel Engine Replacement Procedure PC-1  
Class

2.3 S9233-E1-MMC-010, Volume 1 of 3, Operating and Maintenance  
Instructions for Paxman Valenta (RP200) Engines

2.4 S9233-E1-MMC-020, Volume 2 of 3, Operating and Maintenance  
Instructions for Paxman Valenta (RP200) Engines

2.5 S9233-E1-MMC-030, Volume 3 of 3, Illustrated Parts List for  
Instructions for Paxman Valenta (RP200) Engines

2.6 S9086-HB-STM-010/CH-233, Diesel Engines

2.7 259-6736974 Rev F, Main Engine Exhaust Piping System

2.8 MIL-STD-777, Schedule of Piping, Valves, Fittings, and Associated  
Piping Components for Naval Surface Ships

2.9 S9086-GX-STM-030/CH-220V3R1, Naval Ship's Technical Manual Chapter  
220 Volume 3 Corrosion and Contamination Control for Diesel Engine  
Cooling Water Systems

SHIP: USS HURRICANE (PC-3)

3. REQUIREMENTS:

3.1 Remove the halon piping from the union connections on the manifold to the nozzles in the overhead. Removal of halon piping shall be accomplished in way of main propulsion diesel assembly and associated components removal and installation.

3.1.1 Tag-out of the halon system shall be in accordance with ship board instructions.

3.2 Remove and dispose of all fluids (fresh water, salt water, lube oil and diesel fuel) from the main propulsion engine listed in 1.3.1 in accordance to the latest local, city, county, state and federal environmental regulations.

3.3 Accomplish preparations for removal of existing main propulsion engine in accordance with 2.2, Sections 3 and 4, using 2.3 through 2.7 for guidance.

3.4 Remove main propulsion engine in accordance with 2.2, Section 6, using 2.3 through 2.6 for guidance.

3.4.1 Provide the services of a certified Paxman Diesel technical representative to provide guidance on preparing existing engine for removal, removal of engine and installation of new engine on the ship.

3.5 Accomplish installation of main propulsion diesel engine listed in 1.3.1 in accordance with 2.2, Section 7, using 2.3 through 2.6 for guidance.

3.5.1 Accomplish the installation of the new government furnished (GFM see 5.1.2) A/V Mounts in accordance with 2.2, Section 7.

3.6 Accomplish reinstallation of removals that was accomplished in paragraphs 3.1 and 3.3 in accordance with 2.2, using 2.3 through 2.7 for guidance.

3.6.1 Install new gaskets and O-rings. New gaskets and O-rings shall conform to the requirements of the List of Material of 2.5, and 2.7.

3.6.1.1 Install two feet of new piping and two new fittings of halon piping at disturbed joints. New material shall conform to 2.8, including category and group T-3.

3.6.1.2 Accomplish the requirements of 009-12 of 2.1, including Table One, Column A, Lines One through 7, and 10.

3.6.1.3 Accomplish the requirements of 009-71 of 2.1, for newly installed piping and fittings with clean dry high pressure air at 1600 PSIG for thirty minutes. Allowable leakage: None

3.6.1.4 Isolate components subject to damage and clean halon

SHIP: USS HURRICANE (PC-3)

piping system to a cleanliness level that results in the internal surfaces being cleaned free of contamination and any remaining residue on the surface does not interfere with the operation of or damage system components.

3.7 Accomplish alignment of the main propulsion engine installed in 3.5 in accordance with 2.2 through 2.5.

3.8 Install twenty-five (25) gallons of new lube oil (Shell Remula 40) in order to accomplish external hot lube oil flush of piping system and associated external components.

3.8.1 Accomplish hot oil flush of external piping and associated components in accordance with pages 233-74 through 233-79, paragraphs 233-8.21 .8 through 233-8.21.13 of 2.6, using 2.3 through 2.5 for guidance.

3.8.1.1 Remove hot flushing oil that was used for external flush and store in a clean fifty five gallon oil drum in order to analysis of oil.

3.8.1.2 Install thirty gallons of clean new lube oil (Shell Remula 40) in main propulsion diesel in order to accomplish internal and external hot lube oil flush.

3.8.1.3 Accomplish hot lube oil flush of internal sections of main propulsion diesel, including external lube oil piping and associated components in accordance with pages 233-79 through 233-80, paragraphs 233-8.21 .14 through 233-8.21.14.4 of 2.6, using 2.3 through 2.5 for guidance.

3.8.1.4 Remove hot flushing lube oil that was used for external and internal flushing and store in a clean and dry fifty five gallon oil drum in order to accomplish an analysis of oil.

3.8.1.5 Accomplish a post-flush-clean up in accordance with pages 80 and 81, paragraph 233-8.21.15 of 2.6, using 2.3 through 2.5 for guidance.

3.8.1.6 Accomplish testing of hot flushing lube oil identified in 3.8.1.2 and 3.8.1.5 to determine if oil can be reused for flushing or operation.

3.8.1.7 Install one hundred and ten gallons of clean distilled water in main propulsion diesel engine water jacket and cooling water system to the full mark. the maximum acceptable limit for distillate water shall conform to 150 microhos per centimeter (umhos/cm). Fill the mixing tank to 1/3 capacity.

3.8.2 Accomplish cleaning of main propulsion diesel engine water jacket and cooling system in accordance with page 200-90, paragraphs 220-50.2 and 220-50.2.1 through 220-50.2.3 of 2.9, using 2.3 through 2.5 for guidance.

SHIP: USS HURRICANE (PC-3)

3.9 Drain main propulsion diesel engine water jacket and cooling system after completion of flushing. Dispose of flushing water in accordance to the latest local, city, county, state and federal environmental regulation.

3.9.1 Install one hundred and twenty five gallons of clean distilled water in main propulsion diesel engine water jacket and cooling system. New distilled water shall conform to page 220-3, paragraph 220-42.1.1 of 2.9.

3.9.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.9 and 3.9.1.to the SUPERVISOR.

3.9.2 Install sixty five gallons of clean lube oil. New operating oil shall conform to (Shell Remula 40).

3.10 Accomplish engine governor checks and testing of alarms in accordance with 2.2.

3.11 Install engine removed in 3.4 in protective bag that the new engine assembly was removed from in accordance with 2.2, Section 13.

3.11.1 Fabricate and install a protective cover over the bag for the main propulsion diesel engine. The protective cover shall be herculite canvas conforming to (MIL-C-43006),shall incorporate grommets of copper alloy conforming to MIL-MS-20230 and 3/8 inch nylon rope for lashing down purposes.

3.11.2 Ship removed engine to Marine Corps Logistics Base (MCLB), Barstow, California using shipping information in 4.1. Readings,Chockfast Inspection, Crank Shaft Deflection And Certification Letter DATE:

3.11.3 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 2.2 to the SUPERVISOR.

3.12 Accomplish the requirements of 009-12 of 2.1, Table 2, Column A, Lines One through 7 and 10.

(V) (G) "OPERATION"

3.13 Verify operation of main propulsion engine during dock and sea trials, using 2.3, and 2.4. for guidance

3.13.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.13 to the SUPERVISOR.

3.14 After completion of sea trials and testing of main propulsion engine, drain jacket water system and install new jacket water coolant, (Paxcool P/N OD 31021) including distilled water to the full mark, using 2.2 through 2.6 for guidance.

SHIP: USS HURRICANE (PC-3)

4. NOTES:

4.1 Point of Contact for delivery of replacement diesel engines and the following special tools: Paxman Engine Lifting Bar, Rebound Clearance Tool, and Coupling Alignment Plate is as follows: Clayton Shepherd NAVSEA 325 202-781-0853

4.2 The shipping address for the removed Paxman diesel engine is as follows: Marine Corps Logistic Base Multi-Commodity Maint. Center B-885/6 Bldg. 573 Barstow, CA 92311-5015 Attn: Gary Heidorn CWC 719 Paxman Engine Project Phone: (760) 577-7158

4.3 MAN B & W Diesel (Houston) Inc. is the OEM for Paxman diesel engines and shall be contacted for a list of certified technical representatives at 713-939-0073.

4.4 The A/V Mounts will be supplied by Ships Force/MST.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

	TOTAL					
	QUANTITY	NAME OF	PIECE	REF	NATIONAL	PARA
	PROVIDED	PART	NO.	NO.	STOCK NO.	NO.
1.	One EA	Main Propulsion Diesel Engine		2.2		3.2
2.	4 EA	A/v Mounts	None	2.2	None	3.5.1

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 233-13-002  
COAR: 16-003 PCN: EM02-P105  
CMP: NONE  
PLANNER: PFANTZ  
SULLIVAN

1. SCOPE:

1.1 Title: Main Propulsion Diesel Engine Coolers; flush

1.2 Location of Work:

1.2.1 Aft Engine Room (3-36-O-E)

1.3 Identification:

1.3.1 Quantity (One), No. 3, Main Propulsion Diesel Engine Fresh Water Cooler Mfr-Serck Transfer Mfr Dwg-44765-1081 Mfr ID 44765-1081 714 Tubes - Straight APL 039990096L

1.3.2 Quantity (One), No. 3, Main Propulsion Diesel Engine Air Charge Heater/Cooler Mfr Id OD30945/Std

1.3.3 Quantity (One), No. 3, Main Propulsion Diesel Engine Transmission Lube Oil Cooler Mfr-Serck Transfer Mfr Dwg-B13-2Z-05 Mfr Id B13-2Z-05 Type P130 2-Pass Apl 039990108L

1.3.4 Quantity (One), No. 3, Main Propulsion Diesel Engine Lube Oil Cooler FL Mfr-Serck Heat Transfer Mfr DWG-44323-5301 Mfr Id-44323-5301 Capacity-18500 Gpm (Water), 15000 Gph (Oil) 386 Tubes-Straight Apl 0399901011

1.3.5 Quantity (One), No. 3, Main Propulsion Diesel Engine Fuel Oil Return Cooler FL Mfr-Serck Heat Transfer Mfr DWG-45315-1041 Mfr Id-45315-1041 Capacity-120 Gph (Fuel Oil), 600 Gph (Sea Water) Apl 039990098L

2. REFERENCES:

2.1 Standard Items

2.2 S9233-E1-MMC-010, Technical Manual For Paxman Valenta (RP200) Diesel Engine

2.3 S9233-E1-MMC-020, Technical Manual For Paxman Valenta (RP200) Diesel Engine

SHIP: USS HURRICANE (PC-3)

- 2.4 S9233-E1-MMC-030, Technical Manual For Paxman Valenta (RP200) Diesel Engine
- 2.5 S9241-CH-MMA-010, Technical Manual For Marine Gearbox Model WVS2232
- 2.6 256-6736971 Rev G, Main Engine Sea Water Cooling Sys Arrangement and Details
- 2.7 S9086-GX-STM-030, Chapter 220 V3, Corrosion and Contamination Control For Diesel Engine Cooling Water Systems

3. REQUIREMENTS:

3.1 Accomplish the requirements of 009-09 of 2.1, for flushing the sea water side of the coolers listed in 1.3 with RYDLYME or equal to remove water scale, lime, mud, rust and other water formed deposits, using 2.2 through 2.6 for guidance.

3.2 Accomplish the requirements of 009-90 of 2.1.

3.2.1 Provide the services of a Q.E.D systems Inc. (Marine Industrial Group) technical representative or equal to provide on-site technical assistance, parts, testing, special tools and guidance to accomplish a flush.

3.3 Install protective covering and protect ships equipment, components and electrical cables during work accomplished in this work item. Remove protective covering upon completion of work.

(V) "FLUSH"

3.4 Accomplish a flush of coolers listed in 1.3, in accordance with approved procedure in 3.1, using 2.2. through 2.6 for guidance.

(V) "VERIFY CLEANLINESS"

3.4.1 Verify cleanliness of system for sea water side of the coolers.

3.4.1.1 Water used for final flush shall meet the requirements of paragraph 220-42.1 of 2.7.

3.4.2 Continually inspect system being flushed for leaks and human or material hazards.

3.5 Remove jumpers, temporary strainers, blanks and other fittings and restore system to its original configuration using new gaskets and flange fasteners, in accordance with 2.2 through 2.6.

3.5.1 Restore mating surfaces exposed by disassembly and removal. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

SHIP: USS HURRICANE (PC-3)

3.6 Remove existing and install new zinc protector rods and protector rod plug O-rings and seals in each cooler listed in 1.3, in accordance with 2.2 through 2.4. Material shall conform to the specifications of 2.2 through 2.4.

3.7 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation new and disturbed surfaces.

(V) (G) "OPERATIONAL TEST"

3.8 Verify satisfactory operation of the coolers and piping system during dock and sea trials.

3.8.1 Allowable leakage at new and disturbed joints: none

3.8.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.8 to the SUPERVISOR.

4. NOTES:

4.1 Known Source to provide technical assistance, parts, testing, special tools and guidance. Q.E.D. Systems, Inc. Marine Industrial Service Group 1330 30TH Street, Suite D San Diego, CA 92154-3434 POC: John Slippen 619-424-3225 Ext 103 Ed Zazin 619-424-3225 Ext 102

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.



SHIP: USS HURRICANE (PC-3) ITEM NO: 233-14-001  
COAR: 16-003 PCN: EM01-Z469  
CMP: NONE  
PLANNER: PFANTZ  
SULLIVAN

1. SCOPE:

1.1 Title: Main Propulsion Diesel Engine; replace

1.2 Location of Work:

1.2.1 Forward Engine Room (3-29-0-E)

1.3 Identification:

1.3.1 Quantity (One): No. 4 Main Propulsion Diesel Engine, Mfr:  
Paxman Diesels LTD, Model: 16RP200CM, 3500 BHP, 16 Cylinder, 4  
Stroke, 197mm Bore, 216mm Stroke, 1500 RPM, APL 667800007L

2. REFERENCES:

2.1 Standard Items

2.2 233-7445061, Main Propulsion Diesel Engine Replacement Procedure PC-1  
Class

2.3 S9233-E1-MMC-010, Volume 1 of 3, Operating and Maintenance  
Instructions for Paxman Valenta (RP200) Engines

2.4 S9233-E1-MMC-020, Volume 2 of 3, Operating and Maintenance  
Instructions for Paxman Valenta (RP200) Engines

2.5 S9233-E1-MMC-030, Volume 3 of 3, Illustrated Parts List for  
Instructions for Paxman Valenta (RP200) Engines

2.6 S9086-HB-STM-010/CH-233, Diesel Engines

2.7 259-6736974 Rev F, Main Engine Exhaust Piping System

2.8 MIL-STD-777, Schedule of Piping, Valves, Fittings, and Associated  
Piping Components for Naval Surface Ships

2.9 S9086-GX-STM-030/CH-220V3R1, Naval Ship's Technical Manual Chapter  
220 Volume 3 Corrosion and Contamination Control for Diesel Engine  
Cooling Water Systems

SHIP: USS HURRICANE (PC-3)

3. REQUIREMENTS:

3.1 Remove the halon piping from the union connections on the manifold to the nozzles in the overhead. Removal of halon piping shall be accomplished in way of main propulsion diesel assembly and associated components removal and installation.

3.1.1 Tag-out of the halon system shall be in accordance with ship board instructions.

3.2 Remove and dispose of all fluids (fresh water, salt water, lube oil and diesel fuel) from the main propulsion engine listed in 1.3.1 in accordance to the latest local, city, county, state and federal environmental regulations.

3.3 Accomplish preparations for removal of existing main propulsion engine in accordance with 2.2, Sections 3 and 4, using 2.3 through 2.7 for guidance.

3.4 Remove main propulsion engine in accordance with 2.2, Section 6, using 2.3 through 2.6 for guidance.

3.4.1 Provide the services of a certified Paxman Diesel technical representative to provide guidance on preparing existing engine for removal, removal of engine and installation of new engine on the ship.

3.5 Accomplish installation of main propulsion diesel engine listed in 1.3.1 in accordance with 2.2, Section 7 using 2.3 through 2.6 for guidance.

3.5.1 Accomplish the installation of new government furnished (GFM see 5.1.2) A/V Mounts in accordance with 2.2, Section 7.

3.6 Accomplish reinstallation of removals that was accomplished in paragraphs 3.1 and 3.3 in accordance with 2.2, using 2.3 through 2.7 for guidance.

3.6.1 Install new gaskets and O-rings. New gaskets and O-rings shall conform to the requirements of the List of Material of 2.5 and 2.7.

3.6.1.1 Install two feet of new piping and two new fittings of halon piping at disturbed joints. New material shall conform to 2.8, including category and group T-3.

3.6.1.2 Accomplish the requirements of 009-12 of 2.1, including Table One, Column A, lines One through 7 and 10.

3.6.1.3 Accomplish the requirements of 009-71 of 2.1, for newly installed piping and fittings with clean dry high pressure air at 1600 PSIG for thirty minutes. Allowable leakage: None

3.6.1.4 Isolate components subject to damage and clean halon

SHIP: USS HURRICANE (PC-3)

piping system to a cleanliness level that results in the internal surfaces being cleaned free of contamination and any remaining residue on the surface does not interfere with the operation of or damage system components.

3.7 Accomplish alignment of the main propulsion engine installed in 3.5 in accordance with 2.2 through 2.5.

3.8 Install twenty-five (25) gallons of new lube oil (Shell Remula 40) in order to accomplish external hot lube oil flush of piping system and associated external components.

3.8.1 Accomplish external and internal hot lube oil flushes of the main propulsion diesel.

3.8.1.1 Accomplish hot oil flush of external piping and associated components in accordance with pages 233-74 through 233-79, paragraphs 233-8.21.8 through 233-8.21.13 of 2.6, using 2.3 through 2.5 for guidance.

3.8.1.2 Remove hot flushing oil that was used for external flush and store in a clean fifty five gallon oil drum in order to analysis of oil.

3.8.1.3 Install thirty gallons of clean new lube oil (Shell Remula 40) in main propulsion diesel in order to accomplish internal and external hot lube oil flush.

3.8.1.4 Accomplish hot lube oil flush of internal sections of main propulsion diesel, including external lube oil piping and associated components in accordance with pages 233-79 through 233-80, paragraphs 233-8.21.14 through 233-8.21.14.4 of 2.6, using 2.3 through 2.5 for guidance.

3.8.1.5 Remove hot flushing lube oil that was used for external and internal flushing and store in a clean and dry fifty five gallon oil drum in order to accomplish an analysis of oil.

3.8.1.6 Accomplish a post-flush-clean up in accordance with pages 80 and 81, paragraph 233-8.21.15 of 2.6, using 2.3 through 2.5 for guidance.

3.8.1.7 Accomplish testing of the hot flushing lube oil identified in 3.8.1.2 and 3.8.1.5 to determine if oil can be reused for flushing or operation.

3.8.1.8 Install one hundred and ten gallons of clean distilled water in main propulsion diesel engine water jacket and cooling water system to the full mark. the maximum acceptable limit for distillate water shall conform to 150 microhos per centimeter (umhos/cm). Fill the mixing tank to 1/3 capacity.

3.8.2 Accomplish cleaning of main propulsion diesel engine water jacket

SHIP: USS HURRICANE (PC-3)

and cooling system in accordance with page 200-90, paragraphs 220-50.2 and 220-50.2.1 through 220-50.2.3 of 2.9, using 2.3 through 2.5 for guidance.

3.9 Drain main propulsion diesel engine water jacket and cooling system after completion of flushing. Dispose of flushing water in accordance to the latest local, city, county, state and federal environmental regulation.

3.9.1 Install one hundred and twenty five gallons of clean distilled water in main propulsion diesel engine water jacket and cooling system. New distilled water shall conform to page 220-3, paragraph 220-42.1.1 of 2.9.

3.9.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.9 and 3.9.1 to the SUPERVISOR.

3.9.2 Install sixty five gallons of clean lube oil. New operating oil shall conform to (Shell Remula 40).

3.10 Accomplish engine governor checks and testing of alarms in accordance with 2.2.

3.11 Install engine removed in 3.4 in protective bag that the new engine assembly was removed from in accordance with 2.2, Section 13.

3.11.1 Fabricate and install a protective cover over the bag for the main propulsion diesel engine. The protective cover shall be herculite canvas conforming to (MIL-C-43006), shall incorporate grommets of copper alloy conforming to MIL-MS-20230 and 3/8 inch nylon rope for lashing down purposes.

3.11.2 Ship removed engine to Marine Corps Logistics Base (MCLB), Barstow, California using shipping information in 4.1. Readings, Chockfast Inspection, Crank Shaft Deflection And Certification Letter DATE:

3.11.3 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 2.2. Appendices 15.0 to the SUPERVISOR.

3.12 Accomplish the requirements of 009-32 of 2.1, for the surface preparation and preservation of new and disturbed surfaces.

(V) (G) "OPERATION"

3.13 Verify operation of main propulsion engine during sea trials, using 2.3 and 2.4 for guidance

3.13.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.13 to the SUPERVISOR.

3.14 After completion of sea trials and testing of main propulsion engine,

SHIP: USS HURRICANE (PC-3)

drain jacket water system and install new jacket water coolant, (Paxcool P/N OD 31021) including distilled water to the full mark, using 2.2 through 2.6 for guidance.

4. NOTES:

4.1 Point of Contact for delivery of replacement diesel engines and the following special tools: Paxman Engine Lifting Bar, Rebound Clearance Tool, and Coupling Alignment Plate is as follows: Clayton Shepherd NAVSEA 325 202-781-0853

4.2 The shipping address for the removed Paxman diesel engine is as follows: Marine Corps Logistic Base Multi-Commodity Maint. Center B-885/6 Bldg. 573 Barstow, CA 92311-5015 Attn: Gary Heidorn CWC 719 Paxman Engine Project Phone: (760) 577-7158

4.3 MAN B & W Diesel (Houston) Inc. is the OEM for Paxman diesel engines and shall be contacted for a list of certified technical representatives at 713-939-0073.

4.4 The A/V Mounts will be supplied by Ships Force/MST.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

	TOTAL					
	QUANTITY	NAME OF	PIECE	REF	NATIONAL	PARA
	<u>PROVIDED</u>	<u>PART</u>	<u>NO.</u>	<u>NO.</u>	<u>STOCK NO.</u>	<u>NO.</u>
1.	One EA	Main Propulsion Diesel Engine		2.2		3.2
2.	4 EA	A/V Mounts	None	2.2		3.5.1

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 233-14-002  
COAR: 16-003 PCN: EM01-P112  
CMP: NONE  
PLANNER: PFANTZ  
SULLIVAN

1. SCOPE:

1.1 Title: Main Propulsion Diesel Engine Coolers; flush

1.2 Location of Work:

1.2.1 Forward Engine Room (3-29-O-E)

1.3 Identification:

1.3.1 Quantity (One), No. 4, Main Propulsion Diesel Engine Fresh Water Cooler Mfr-Serck Transfer Mfr Dwg-44765-1081 Mfr ID 44765-1081 714 Tubes - Straight APL 039990096L

1.3.2 Quantity (One), No. 4, Main Propulsion Diesel Engine Air Charge Heater/Cooler Mfr Id OD30945/Std

1.3.3 Quantity (One), No. 4, Main Propulsion Diesel Engine Transmission Lube Oil Cooler Mfr-Serck Transfer Mfr Dwg-B13-2Z-05 Mfr Id B13-2Z-05 Type P130 2-Pass Apl 039990108L

1.3.4 Quantity (One), No. 4, Main Propulsion Diesel Engine Lube Oil Cooler FL Mfr-Serck Heat Transfer Mfr DWG-44323-5301 Mfr Id-44323-5301 Capacity-18500 Gpm (Water), 15000 Gph (Oil) 386 Tubes-Straight Apl 0399901011

1.3.5 Quantity (One), No. 4, Main Propulsion Diesel Engine Fuel Oil Return Cooler FL Mfr-Serck Heat Transfer Mfr DWG-45315-1041 Mfr Id-45315-1041 Capacity-120 Gph (Fuel Oil), 600 Gph (Sea Water) Apl 039990098L

2. REFERENCES:

2.1 Standard Items

2.2 S9233-E1-MMC-010, Technical Manual For Paxman Valenta (RP200) Diesel Engine

2.3 S9233-E1-MMC-020, Technical Manual For Paxman Valenta (RP200) Diesel Engine

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- 2.4 S9233-E1-MMC-030, Technical Manual For Paxman Valenta (RP200) Diesel Engine
- 2.5 S9241-CH-MMA-010, Technical Manual For Marine Gearbox Model WVS2232
- 2.6 256-6736971 Rev G, Main Engine Sea Water Cooling Sys Arrangement and Details
- 2.7 S9086-GX-STM-030, Chapter 220 V3, Corrosion and Contamination Control For Diesel Engine Cooling Water Systems

3. REQUIREMENTS:

3.1 Accomplish the requirements of 009-09 of 2.1, for flushing the sea water side of the coolers listed in 1.3 with RYDLYME or equal to remove water scale, lime, mud, rust and other water formed deposits, using 2.2 through 2.6 for guidance.

3.2 Accomplish the requirements of 009-90 of 2.1.

3.2.1 Provide the services of a Q.E.D systems Inc. (Marine Industrial Group) technical representative or equal to provide on-site technical assistance, parts, testing, special tools and guidance to accomplish a flush.

3.3 Install protective covering and protect ships equipment, components and electrical cables during work accomplished in this work item. Remove protective covering upon completion of work.

(V) "FLUSH"

3.4 Accomplish a flush of coolers listed in 1.3, in accordance with approved procedure in 3.1, using 2.2. through 2.6 for guidance.

(V) "VERIFY CLEANLINESS"

3.4.1 Verify cleanliness of system for sea water side of the coolers.

3.4.1.1 Water used for final flush shall meet the requirements of paragraph 220-42.1 of 2.7.

3.4.2 Continually inspect system being flushed for leaks and human or material hazards.

3.5 Remove jumpers, temporary strainers, blanks and other fittings and restore system to its original configuration using new gaskets and flange fasteners, in accordance with 2.2 through 2.6.

3.5.1 Restore mating surfaces exposed by disassembly and removal. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

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3.6 Remove existing and install new zinc protector rods and protector rod plug O-rings and seals in each cooler listed in 1.3, in accordance with 2.2 through 2.4. Material shall conform to the specifications of 2.2 through 2.4.

3.7 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation new and disturbed surfaces.

(V) (G) "OPERATIONAL TEST"

3.8 Verify satisfactory operation of the coolers and piping system during dock and sea trials.

3.8.1 Allowable leakage at new and disturbed joints: none

3.8.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.8 to the SUPERVISOR.

4. NOTES:

4.1 Known Source to provide technical assistance, parts, testing, special tools and guidance. Q.E.D. Systems, Inc. Marine Industrial Service Group 1330 30TH Street, Suite D San Diego, CA 92154-3434 POC: John Slippen 619-424-3225 Ext 103 Ed Zazin 619-424-3225 Ext 102

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.



SHIP: USS HURRICANE (PC-3) ITEM NO: 233-85-001  
COAR: 16-003 PCN: EXTY-0030  
CMP: NONE  
PLANNER: PFANTZ  
SULLIVAN

1. SCOPE:

1.1 Title: PC1 Class AER-0030E Rev 00, Jacket Water Recovery System Modification; accomplish

1.2 Location of Work:

1.2.1 Fwd Engine Room (3-29-0-E), N0.1 and 4 Main Engine

1.2.2 Aft Engine Room (3-36-0-E), N0. 2 and 3 Main Engine

1.3 Identification:

1.3.1 Jacket Water Prewarming Piping

2. REFERENCES:

2.1 Standard Items

2.2 536-6737059 Rev D, Main Engine FW Cooling Sys Arr and Dets

2.3 536-7444838 Rev -, Installation Jacket Water Recovery System

2.4 PC1 CLASS AER-0030E Rev 00, Jacket Water Recovery System Modification

3. REQUIREMENTS:

3.1 Accomplish removals, modifications and installations incidental to PC1 Class AER-0030E Rev 00, Installation Jacket Water Recovery System as identified in 1.3.1 for locations listed in 1.2.1 and 1.2.2 in accordance with 2.3, using 2.2, and 2.4 for guidance.

3.1.1 Install the new Qty (4) Main engine jacket water recovery system isolation valve and associated fittings in accordance with 2.3.

3.1.2 Accomplish the requirements of 009-12 of 2.1, including Table One, Column A, Lines One through 10.

3.2 Clean and flush the new and disturbed sections of jacket water prewarming and recovery sytem piping with clean fresh water in accordance with 2.3.

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3.3 Accomplish the requirements of 009-71 of 2.1, for hydrostatically testing the new and disturbed sections of jacket water piping, in accordance with test note T-1 of 2.3.

(V) (G) "OPERATIONAL TEST"

3.4 Accomplish an operational test of the new and disturbed jacket water piping system under system operating pressure, in accordance with test note T-2 of 2.3.

3.4.1 Cycle each newly installed valve from full closed to full open to full closed a minimum of four times. Allowable leakage: None.

3.4.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.4, and 3.4.1 to the SUPERVISOR.

3.5 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 243-11-001  
COAR: 16-003 PCN: EM01-Z492  
EM02-Z497  
CMP: NONE  
PLANNER: PFANTZ

1. SCOPE:

1.1 Title: Propulsion Shafting; repair (DRYDOCK)

1.2 Location of Work:

1.2.1 Drydock

1.2.2 After Engine Room (3-36-0-E)

1.2.3 Forward Engine Room (3-29-0-E)

1.3 Identification:

1.3.1 Propulsion Shaft No. One

2. REFERENCES:

2.1 Standard Items

2.2 S9086-HM-STM-010/CH-243, Propulsion Shafting

2.3 243-6736967 Rev K, Propulsion Shaft Details

2.4 161-6736936 Rev D, Stern Tube Installation Details

2.5 S9086-HN-STM-010/CH-244, Propulsion Bearings and Seals

2.6 161-6736941 Rev H, Main Shaft Strut Installation

2.7 161-6736942 Rev H, Intermediate Shaft Strut Installation

2.8 201-6736981 Rev D, Propulsion Configuration

2.9 161-6736938 Rev F, Main Strut Details

2.10 161-6736939 Rev F, Intermediate Shaft Strut Details

2.11 243-6736968 Rev D, Hyd Nut & Oil Inject Eqpt Shaft Instl

2.12 6B233C405 Rev F, Propulsion Alignment Final Check

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2.13 243-5107134, Propeller, Gearbox and Muff Coupling  
Installation/Removal

3. REQUIREMENTS:

3.1 Remove rope guard in accordance with 2.3 and 2.8.

3.2 Remove gear box coupling in accordance with 2.3, 2.8, 2.11 and 2.13.

3.2.1 Clean gear box coupling free of foreign matter leaving no residue or injurious effect.

(I) (G) "VISUAL INSPECTION"

3.2.2 Visually inspect gear box coupling for damage or deterioration in accordance with 2.3 and 2.8.

3.3 Disassemble and remove stern tube stuffing box assembly from packing area in accordance with 2.3 and 2.4.

3.3.1 Clean each part, including packing journal and forward stern tube flange area, free of foreign matter, leaving no residue or injurious effects.

(I) "WEAR AND DEFECTS"

3.3.2 Inspect each part for wear and defects, including stern tube forward flange area for deterioration using 2.3 and 2.4 for accept or reject criteria.

3.3.3 Measure packing journal at 90 degree increments, using 2.3 for accept or reject criteria.

3.3.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.3.2 and 3.3.3 to the SUPERVISOR.

3.4 Disassemble the bulkhead seal assembly in accordance with 2.3 and 2.5.

3.4.1 Measure and record sizes and clearances of each wearing part and fit area, using 2.3 and 2.5 for guidance.

3.4.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.4.1 to the SUPERVISOR.

3.4.2 Clean each part free of foreign matter leaving no residue or injurious effects.

(I) (G) "SHAFT RUNOUT"

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3.5 Measure shaft runout of propulsion shaft with dial indicators located at the large and small ends of the propeller shaft taper, forward and after ends of strut bearing journals and aft end of the stern tube bearing journal. Position one indicator at each location.

3.5.1 Position indicator at the top centerline of the shaft.

3.5.2 Establish a positive communication system between the turning operator and drydock.

3.5.3 Lubricate each strut and stern tube bearing by applying free flowing clean water to each bearing. Application of water shall be maintained for the entire shaft turning operation.

3.5.4 Lubricate the pedestal bearing with grease conforming to DOD-G-24508.

(I) (G) "ROTATION"

3.5.5 Rotate shaft in the ahead direction for three complete revolutions. Record dial indicator readings simultaneously at each location for each 45 degrees of shaft rotation.

3.5.6 Plot runout readings recorded in 3.5.5 Determine total indicator run out for each location.

3.5.6.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.5.5 and 3.5.6 to the SUPERVISOR.

3.6 Remove the outboard and inboard propeller shafts and muff coupling in accordance with 2.3, 2.4, 2.5, 2.11 and 2.13.

3.6.1 Establish matchmarks and identification numbers on coupling, coupling bolt hole, bolt, nut, key and keyway.

3.6.2 Clean shafting coupling free of foreign matter, leaving no residue or injurious effects.

(I) (G) "WEAR AND DEFECTS"

3.6.3 Inspect shaft section for wear and defects in accordance with 2.2 and 2.3.

3.6.4 Inspect shaft section for eccentricity and straightness.

3.6.4.1 The maximum eccentric variation of radius at any point of the journal during a complete revolution shall not exceed 0.010 inch.

3.6.4.2 The maximum eccentricity in any shaft section with

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respect to axis of rotation shall be limited to 0.010 inch

3.7 Inspect main and intermediate strut assemblies for structural integrity, deterioration, pitting, cracks and areas of damage or distortion, using 2.6, 2.7, 2.9 and 2.10 as guidance for accept or reject criteria.

3.7.1 Clean each strut, free of foreign matter leaving no residue or injurious effects.

3.7.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.7 to the SUPERVISOR.

3.8 Repair stuffing box assembly in accordance with 2.3 and 2.4.

3.8.1 Restore mating surfaces exposed by disassemble and removal. Repair by removing high spots, burrs, abrasions and foreign matter where removal can be accomplished by hand tools.

3.8.2 Stone stuffing box shaft packing journal to remove high spots.

3.8.3 Chase and tap exposed threaded areas.

3.9 Repair stern tube forward flange area, using 2.3 and 2.4 for guidance.

3.9.1 Accomplish the requirements of 009-09 of 2.1, for repairing stern tube forward flange area from inspection results of 3.3.2.

3.9.1.1 Procedure shall include machining of inner stern tube area to remove deteriorated areas for weld preparation, material to be used for buildup and amount of material added for buildup and machining of stern tube area to design dimensions, using 2.3 and 2.4 for guidance.

3.9.2 Accomplish repairs to stern tube forward flange area in accordance with approved procedure in 3.9.1.

3.9.2.1 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column A, Lines One through 7.

3.9.2.2 Accomplish nondestructive testing in accordance with Line 10.

3.9.3 Machine stern tube forward flange area to design dimensions and finishes, using 2.3 and 2.4 as guidance.

3.9.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.9.3 to the SUPERVISOR.

3.10 Repair the inboard and outboard propeller shaft in accordance with 2.2,

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using 2.3 and 2.5 for guidance.

3.10.1 Machine skim cut each propeller shaft in way of each packing, seal and bearing journal area, to remove corrosion and pitting, using 2.2, 2.3 and 2.5 for guidance.

3.10.1.1 Maximum amount of material to be machined/skim cut from shaft shall be designated by the SUPERVISOR.

3.11 Install and align the inboard and outboard propeller shafting and install new goverment furnished (GFM see 5.1) muff coupling in accordance with 2.2, 2.3, 2.4, 2.9, 2.11 and 2.13.

3.11.1 Contact the services of a Naval Surface Warfare Center (NSWC) Detachment Norfolk technical representative for guidance in the installation of the muff coupling.

3.11.2 Remove existing and install new muff coupling seal, SKF Products Part No. 412188.

3.11.3 Inboard and outboard shafting shall be installed in accordance with the following:

(I) (G) "SHAFTING REINSTALLATION"

3.11.3.1 Outboard propeller shaft removed in 3.6 shall be reinstalled as the inboard shaft and the inboard shaft removed in 3.6 shall be reinstalled as the outboard shaft.

3.11.4 Measure and record final intermediate and main strut bearing clearances.

3.11.4.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.11.4 to the SUPERVISOR.

3.12 Reassemble and install stuffing box assembly in accordance with 2.3 and 2.4.

3.12.1 Remove existing, fit, and install new the following parts:

TOTAL QTY REQUIRED	NAME OF PART	PIECE NO.	REF NO.	
9 FT	Gland Packing	57	2.3	5324500
8 Each	Cap Screw	61	2.3	5531100
8 Each	Locknut	65	2.3	5315760
16 Each	Washer, Flat	66	2.3	5676900
4 Each	Shaft Packing	68a	2.3	5404710
	Pusher Stud			

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4 Each	Nut, Full	68c	2.3	5315580
One Each	O-ring No.447	124	2.3	5319201

3.12.2 Prior to installing stern tube stuffing box apply 2 coats of bar-rust 235 on the stern tube flange in way of spigot fit.

3.12.3 Measure and record final sizes and clearances in accordance with 2.3 and 2.4.

3.12.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.12.3 to the SUPERVISOR.

3.12.4 Install thread locking compound in accordance with 2.5.

3.13 Install bulkhead seal assembly in accordance with 2.3 and 2.5.

3.13.1 Remove existing, fit, and install new the following parts:

TOTAL QTY REQUIRED	NAME OF PART	PIECE NO.	REF NO.	PART NO.
One	Diaphragm Assembly John-Crane		2.3	H70300/130/2 John-Crane
6 Each	Skt Hd Capscrew	100	2.3	5509351
2 Each	Screw Cap	101	2.3	5531689
6 Each	Nut 1/2 Inch	103	2.3	5314500
2 Each	Nut Half	104	2.3	5311360
2 Sq Ft	Gasket Material	122	2.3	5161811
14 Each	Washer Flat	123	2.3	5676700

3.13.2 Measure and record final sizes and clearances in accordance with 2.3.

3.13.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.13.2 to the SUPERVISOR.

3.14 Install rope guard and gear box coupling on inboard shaft in accordance with 2.3, 2.8, 2.11 and 2.13.

3.14.1 Fabricate, fit and install new rope guard in accordance with 2.3. and 2.8.

3.14.1.1 New rope guard shall conform to the requirements of List of Material of 2.3.

3.14.2 Accomplish the requirements of 009-12 of 2.1, including Table One, Column A, Lines One through 9.



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(I) (G) "VERIFY CLEARANCES"

3.14.3 Verify rope guard to propeller hub clearance in accordance with 2.3, 2.8 and 2.6 for guidance.

3.14.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.14.3 to the PORT ENGINEER.

(I) (G) "FINAL ALIGNMENT"

3.15 Verify final alignment of shafting, transmission and engine, using 2.2 through 2.5 and 2.12 for guidance.

3.15.1 Record test data on Test Data Sheets of 2.12.

3.15.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.15 to the SUPERVISOR.

3.15.2 All structural work shall be completed prior to shaft alignment.

3.15.3 All propulsion system fluids shall be at operating levels.

3.15.4 Ship shall be waterborne 48 hours prior to final alignment.

3.15.5 Provide 5 mandays of labor and 200 dollars of material to correct final alignment discrepancies.

3.16 Accomplish the requirements of 009-32 of 2.1, for new and disturbed surfaces.

3.17 The length of externally threaded fasteners shall be such that a minimum of two threads to a maximum of five threads shall protrude beyond the crown of the tightened nut.

(I) (V) "VERIFY OPERATION"

3.18 Verify satisfactory operation of the stern tube packing during dock and sea trials.

3.18.1 Allowable leakage at stern tube packing: 6-10 drops per minute.

3.18.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.18 to the SUPERVISOR.

4. NOTES:

4.1 Technical representative in 3.11.1 shall be contacted from the following office: Naval Surface Warfare Center (NSWC) Detachment Norfolk (757) 686-7978  
POC: Larry Puckette

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5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

TOTAL						
QUANTITY	NAME OF	PIECE	REF	NATIONAL	PARA	
<u>PROVIDED</u>	<u>PART</u>	<u>NO.</u>	<u>NO.</u>	<u>STOCK NO.</u>	<u>NO.</u>	
1. One EA	Muff Coupling	25	2.3	None	3.11	

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>243-12-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EM02-7499</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>PFANTZ</u>

1. SCOPE:

1.1 Title: Propulsion Shafting; repair (DRYDOCK)

1.2 Location of Work:

1.2.1 Drydock

1.2.2 After Engine Room (3-36-0-E)

1.3 Identification:

1.3.1 Propulsion Shaft No. 2

2. REFERENCES:

2.1 Standard Items

2.2 S9086-HM-STM-010/CH-243, Propulsion Shafting

2.3 243-6736967 Rev K, Propulsion Shaft Details

2.4 161-6736936 Rev D, Stern Tube Installation Details

2.5 S9086-HN-STM-010/CH-244, Propulsion Bearings and Seals

2.6 161-6736941 Rev H, Main Shaft Strut Installation

2.7 161-6736942 Rev H, Intermediate Shaft Strut Installation

2.8 201-6736981 Rev D, Propulsion Configuration

2.9 161-6736938 Rev F, Main Strut Details

2.10 161-6736939 Rev F, Intermediate Shaft Strut Details

2.11 243-6736968 Rev D, Hyd Nut & Oil Inject Eqpt Shaft Instl

2.12 6B233C405 Rev F, Propulsion Alignment Final Check

2.13 243-5107134, Propeller, Gearbox and Muff Coupling  
Installation/Removal

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3. REQUIREMENTS:

3.1 Remove rope guard in accordance with 2.3. and 2.8.

3.1.1 Clean rope guard free of foreign matter leaving no injurious effects.

(I) "VISUAL INSPECTION"

3.1.2 Visually inspect rope guard for damage or deterioration in accordance with 2.3 and 2.8.

3.2 Remove gear box coupling in accordance with 2.3, 2.8, 2.11 and 2.13.

3.2.1 Clean gear box coupling free of foreign matter leaving no residue or injurious effect.

(I) (G) "VISUAL INSPECTION"

3.2.2 Visually inspect gear box coupling for damage or deterioration in accordance with 2.3 and 2.8.

3.3 Disassemble and remove stern tube stuffing box assembly from packing area in accordance with 2.3 and 2.4.

3.3.1 Clean each part, including packing journal and forward stern tube flange area, free of foreign matter, leaving no residue or injurious effects.

(I) "WEAR AND DEFECTS"

3.3.2 Inspect each part for wear and defects, including stern tube forward flange area for deterioration using 2.3 and 2.4 for accept or reject criteria.

3.3.3 Measure packing journal at 90 degree increments, using 2.3 for accept or reject criteria.

3.3.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.3.2 and 3.3.3 to the SUPERVISOR.

(I) (G) "SHAFT RUNOUT"

3.4 Measure shaft runout of propulsion shaft with dial indicators located at the large and small ends of the propeller shaft taper, forward and after ends of strut bearing journals and aft end of the stern tube bearing journal. Position one indicator at each location.

3.4.1 Position indicator at the top centerline of the shaft.

3.4.2 Establish a positive communication system between the turning operator and drydock.

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3.4.3 Lubricate each strut and stern tube bearing by applying free flowing clean water to each bearing. Application of water shall be maintained for the entire shaft turning operation.

3.4.4 Lubricate the pedestal bearing with grease conforming to DOD-G-24508.

(I) (G) "ROTATION"

3.4.5 Rotate shaft in the ahead direction for three complete revolutions. Record dial indicator readings simultaneously at each location for each 45 degrees of shaft rotation.

3.4.6 Plot runout readings recorded in 3.4.5. Determine total indicator run out for each location.

3.4.6.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.4.5 and 3.4.6 to the SUPERVISOR.

3.5 Remove the propeller shaft in accordance with 2.3, 2.4, 2.5, 2.11 and 2.13.

3.5.1 Establish matchmarks and identification numbers on coupling, coupling bolt hole, bolt, nut, key and keyway.

3.5.2 Clean shafting free of foreign matter, leaving no residue or injurious effects.

(I) (G) "WEAR AND DEFECTS"

3.5.3 Inspect shaft section for wear and defects in accordance with 2.2 and 2.3.

3.5.4 Inspect shaft section for eccentricity and straightness.

3.5.4.1 The maximum eccentric variation of radius at any point of the journal during a complete revolution shall not exceed 0.010 inch.

3.5.4.2 The maximum eccentricity in any shaft section with respect to axis of rotation shall be limited to 0.010 inch

3.5.4.3 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.5.4 to the SUPERVISOR.

3.6 Inspect main and intermediate strut assemblies for structural integrity, deterioration, pitting, cracks and areas of damage or distortion, using 2.6, 2.7, 2.9 and 2.10 as guidance for accept or reject criteria.

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3.6.1 Clean each strut, free of foreign matter leaving no residue or injurious effects.

3.6.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.6 to the SUPERVISOR.

3.7 Repair stuffing box assembly in accordance with 2.3 and 2.4.

3.7.1 Restore mating surfaces exposed by disassemble and removal. Repair by removing high spots, burrs, abrasions and foreign matter where removal can be accomplished by hand tools.

3.7.2 Stone stuffing box shaft packing journal to remove high spots.

3.7.3 Chase and tap exposed threaded areas.

3.8 Repair stern tube forward flange area, using 2.3 and 2.4 for guidance.

3.8.1 Accomplish the requirements of 009-09 of 2.1, for repairing stern tube forward flange area from inspection results of 3.3.2.

3.8.1.1 Procedure shall include machining of inner stern tube area to remove deteriorated areas for weld preparation, material to be used for buildup and amount of material added for buildup and machining of stern tube area to design dimensions, using 2.3 and 2.4 for guidance.

3.8.2 Accomplish repairs to stern tube forward flange area in accordance with approved procedure in 3.8.1.

3.8.2.1 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column A, Lines One through 7.

3.8.2.2 Accomplish nondestructive testing in accordance with Line 10.

3.8.3 Machine stern tube forward flange area to design dimensions and finishes, using 2.3 and 2.4 as guidance.

3.8.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.8.3 with sketches to the SUPERVISOR.

3.9 Repair the propeller shaft in accordance with 2.2, using 2.3 and 2.5 for guidance. Repairs to the shaft at the stuffing box packing area, stern tube bearing journal and main strut journals shall be accomplished using flame spraying processes of MIL-STD-1687A.

3.9.1 The first of these processes is the high velocity oxygen fuel (HVOF) flame spray. This process shall be used to repair damage resulting from

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scoring, gouges or surface wear that is less than .015 inches. The HVOF flame spray coating shall consist of a matrix of 75 percent tungsten carbide and 25 percent C276 Hastalloy.

3.9.2 The second process is a combination of the electric arc spray followed by the HVOF coating. This combination process shall be used in the areas where the damage is greater than .015 inch deep. The electric arc spray shall be used as a base coating to restore the damaged area and the HVOF shall be the final surface. The HVOF coating shall have a minimum thickness of .010 inch and overlap each end of the arc spray by one inch. The arc spray process shall utilize filler material similar or equal to TAFALLOY Nickel-Chrome-Moly Wire-71T or Sulzer-Metco 8620 and have a composition similar to the following: Nickel 62.5 Percent, Chromium 22.0 Percent, Moly 10 Percent, Iron 2.0 Percent and Other 3.5 Percent.

3.9.2.1 The thickness of the HVOF should be limited to .015 inches. Final finish shaft to original design dimensions of 2.3, using diamond-grinding wheels.

3.9.2.2 Shaft shall be shipped to the following authorized repair company for accomplishment of High Velocity Oxygen Fuel Spray coating (HVOF): PRAXAIR Surface Technologies Inc. 6911 Fulton Street Houston, TX 77022 POC: Larry Ross (713) 991-8708

3.10 Install and align the propeller shaft in accordance with 2.2, 2.3, 2.4, 2.9, 2.11 and 2.13.

3.10.1 Measure and record final intermediate and main strut bearing clearances.

3.10.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.10.1 to the SUPERVISOR.

3.11 Reassemble and install stuffing box assembly in accordance with 2.3 and 2.4.

3.11.1 Remove existing, fit, and install new the following parts:

TOTAL QTY REQUIRED	NAME OF PART	PIECE NO.	REF NO.	FIG NO.	PART NO.
9 FT	GLAND PACKING	57	2.3		5324500
8 EACH	CAP SCREW	61	2.3		5531100
8 EACH	LOCKNUT	65	2.3		5315750
16 EACH	WASHER, FLAT	66	2.3		5676900
4 EACH	SHAFT PACKING PUSHER STUD	68a	2.3		5405710

SHIP: USS HURRICANE (PC-3)

4 EACH	NUT, JAM	68c	2.3	5315600
ONE EACH	O-RING, NO. 447 124		2.3	5319201

3.11.2 Prior to installing stern tube stuffing box apply 2 coats of Bar-Rust 235 on the stern tube flange in way of spigot fit.

3.11.3 Measure and record final sizes and clearances in accordance with 2.3. and 2.4.

3.11.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.11.3 to the SUPERVISOR.

3.11.4 Install thread locking compound in accordance with 2.5.

3.12 Install rope guard and gear box coupling on inboard shaft in accordance with 2.3, 2.8, 2.11 and 2.13.

3.12.1 Fabricate, fit and install new rope guard in accordance with 2.3 and 2.8.

3.12.1.1 New rope guard shall conform to the requirements of List of Material of 2.3.

3.12.2 Accomplish the requirements of 009-12 of 2.1, including Table One, Column A, Lines One through 9.

(I) (G) "VERIFY CLEARANCES"

3.12.3 Verify rope guard to propeller hub clearance in accordance with 2.3, 2.8 and 2.6 for guidance.

3.12.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.12.3 to the SUPERVISOR.

(I) (G) "FINAL ALIGNMENT"

3.13 Verify final alignment of shafting, transmission and engine, using 2.2 through 2.5 and 2.12 for guidance.

3.13.1 Record test data on Test Data Sheets of 2.12.

3.13.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.13 to the SUPERVISOR.

3.13.2 All structural work shall be completed prior to shaft alignment.

3.13.3 All propulsion system fluids shall be at operating levels.



SHIP: USS HURRICANE (PC-3)

3.13.4 Ship shall be waterborne 48 hours prior to final alignment.

3.13.5 Provide 5 mandays of labor and 200 dollars of material to correct final alignment discrepancies.

3.14 Accomplish the requirements of 009-32 of 2.1, for preparation and preservation of new and disturbed surfaces.

3.15 The length of externally threaded fasteners shall be such that a minimum of two threads to a maximum of five threads shall protrude beyond the crown of the tightened nut.

(I) (V) "VERIFY OPERATION"

3.16 Verify satisfactory operation of the stern tube packing during dock and sea trials.

3.16.1 Allowable leakage at stern tube packing: 6-10 drops per minute.

3.16.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.16 to the SUPERVISOR.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>243-13-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EM02-Z501</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>PFANTZ</u>

1. SCOPE:

1.1 Title: Propulsion Shafting; repair (DRYDOCK)

1.2 Location of Work:

1.2.1 Drydock

1.2.2 After Engine Room (3-36-0-E)

1.3 Identification:

1.3.1 Propulsion Shaft No. 3

2. REFERENCES:

2.1 Standard Items

2.2 S9086-HM-STM-010/CH-243, Propulsion Shafting

2.3 243-6736967 Rev K, Propulsion Shaft Details

2.4 161-6736936 Rev D, Stern Tube Installation Details

2.5 S9086-HN-STM-010/CH-244, Propulsion Bearings and Seals

2.6 161-6736941 Rev H, Main Shaft Strut Installation

2.7 161-6736942 Rev H, Intermediate Shaft Strut Installation

2.8 201-6736981 Rev D, Propulsion Configuration

2.9 161-6736938 Rev F, Main Strut Details

2.10 161-6736939 Rev F, Intermediate Shaft Strut Details

2.11 243-6736968 Rev D, Hyd Nut & Oil Inject Eqpt Shaft Instl

2.12 6B233C405 Rev F, Propulsion Alignment Final Check

2.13 243-5107134, Propeller, Gearbox and Muff Coupling  
Installation/Removal

SHIP: USS HURRICANE (PC-3)

3. REQUIREMENTS:

3.1 Remove rope guard in accordance with 2.3 and 2.8.

3.1.1 Clean rope guard free of foreign matter leaving no injurious effects.

(I) "VISUAL INSPECTION"

3.1.2 Visually inspect rope guard for damage or deterioration in accordance with 2.3 and 2.8.

3.2 Remove gear box coupling in accordance with 2.3, 2.8, 2.11 and 2.13.

3.2.1 Clean gear box coupling free of foreign matter leaving no residue or injurious effect.

(I) (G) "VISUAL INSPECTION"

3.2.2 Visually inspect gear box coupling for damage or deterioration in accordance with 2.3 and 2.8.

3.3 Disassemble and remove stern tube stuffing box assembly from packing area in accordance with 2.3 and 2.4.

3.3.1 Clean each part, including packing journal and forward stern tube flange area, free of foreign matter, leaving no residue or injurious effects.

(I) "WEAR AND DEFECTS"

3.3.2 Inspect each part for wear and defects, including stern tube forward flange area for deterioration using 2.3 and 2.4 for accept or reject criteria.

3.3.3 Measure packing journal at 90 degree increments, using 2.3 for accept or reject criteria.

3.3.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.3.2 and 3.3.3 to the SUPERVISOR.

(I) (G) "SHAFT RUNOUT"

3.4 Measure shaft runout of propulsion shaft with dial indicators located at the large and small ends of the propeller shaft taper, forward and after ends of strut bearing journals and aft end of the stern tube bearing journal. Position one indicator at each location.

3.4.1 Position indicator at the top centerline of the shaft.

3.4.2 Establish a positive communication system between the turning operator and drydock.

SHIP: USS HURRICANE (PC-3)

3.4.3 Lubricate each strut and stern tube bearing by applying free flowing clean water to each bearing. Application of water shall be maintained for the entire shaft turning operation.

3.4.4 Lubricate the pedestal bearing with grease conforming to DOD-G-24508.

(I) (G) "ROTATION"

3.4.5 Rotate shaft in the ahead direction for three complete revolutions. Record dial indicator readings simultaneously at each location for each 45 degrees of shaft rotation.

3.4.6 Plot runout readings recorded in 3.4.5. Determine total indicator run out for each location.

3.4.6.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.4.5 and 3.4.6 to the SUPERVISOR.

3.5 Remove the propeller shaft in accordance with 2.3, 2.4, 2.5, 2.11 and 2.13.

3.5.1 Establish matchmarks and identification numbers on coupling, coupling bolt hole, bolt, nut, key and keyway.

3.5.2 Clean shafting free of foreign matter, leaving no residue or injurious effects.

(I) (G) "WEAR AND DEFECTS"

3.5.3 Inspect shaft section for wear and defects in accordance with 2.2 and 2.3.

3.5.4 Inspect shaft section for eccentricity and straightness.

3.5.4.1 The maximum eccentric variation of radius at any point of the journal during a complete revolution shall not exceed 0.010 inch.

3.5.4.2 The maximum eccentricity in any shaft section with respect to axis of rotation shall be limited to 0.010 inch

3.5.4.3 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.5.4 to the SUPERVISOR.

3.6 Inspect main and intermediate strut assemblies for structural integrity, deterioration, pitting, cracks and areas of damage or distortion, using 2.5, 2.6, 2.9. and 2.10. as guidance for accept or reject criteria.

SHIP: USS HURRICANE (PC-3)

3.6.1 Clean each strut, free of foreign matter leaving no residue or injurious effects.

3.6.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.6 to the SUPERVISOR.

3.7 Repair stuffing box assembly in accordance with 2.3 and 2.4.

3.7.1 Restore mating surfaces exposed by disassemble and removal. Repair by removing high spots, burrs, abrasions and foreign matter where removal can be accomplished by hand tools.

3.7.2 Stone stuffing box shaft packing journal to remove high spots.

3.7.3 Chase and tap exposed threaded areas.

3.8 Repair stern tube forward flange area, using 2.3 and 2.4 for guidance.

3.8.1 Accomplish the requirements of 009-09 of 2.1, for repairing stern tube forward flange area from inspection results of 3.3.2.

3.8.1.1 Procedure shall include machining of inner stern tube area to remove deteriorated areas for weld preparation, material to be used for buildup and amount of material added for buildup and machining of stern tube area to design dimensions, using 2.3 and 2.4 for guidance.

3.8.2 Accomplish repairs to stern tube forward flange area in accordance with approved procedure in 3.8.1.

3.8.2.1 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column A, Lines One through 7.

3.8.2.2 Accomplish nondestructive testing in accordance with Line 10.

3.8.3 Machine stern tube forward flange area to design dimensions and finishes, using 2.3 and 2.4 as guidance.

3.8.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.8.3 with sketches to the SUPERVISOR.

3.9 Repair the propeller shaft in accordance with 2.2, using 2.3 and 2.5 for guidance. Repairs to the shaft at the stuffing box packing area, stern tube bearing journal and main strut journals shall be accomplished using flame spraying processes of MIL-STD-1687A.

3.9.1 The first of these processes is the high velocity oxygen fuel (HVOF) flame spray. This process shall be used to repair damage resulting from

SHIP: USS HURRICANE (PC-3)

scoring, gouges or surface wear that is less than .015 inches. The HVOF flame spray coating shall consist of a matrix of 75 percent tungsten carbide and 25 percent C276 Hastalloy.

3.9.2 The second process is a combination of the electric arc spray followed by the HVOF coating. This combination process shall be used in the areas where the damage is greater than .015 inch deep. The electric arc spray shall be used as a base coating to restore the damaged area and the HVOF shall be the final surface. The HVOF coating shall have a minimum thickness of .010 inch and overlap each end of the arc spray by one inch. The arc spray process shall utilize filler material similar or equal to TAFALLOY Nickel-Chrome-Moly Wire-71T or Sulzer-Metco 8620 and have a composition similar to the following: Nickel 62.5 Percent, Chromium 22.0 Percent, Moly 10.0 Percent, Iron 2.0 Percent and Other 3.5 Percent.

3.9.2.1 The thickness of the HVOF should be limited to .015 inches. Final finish shaft to original design dimensions of 2.3, using diamond-grinding wheels.

3.9.2.2 Shaft shall be shipped to the following authorized repair company for accomplishment of High Velocity Oxygen Fuel Spray coating (HVOF): PRAXAIR Surface Technologies Inc. 6911 Fulton Street Houston, TX 77022 POC: Larry Ross (713) 991-8708

3.10 Install and align the propeller shaft in accordance with 2.2, 2.3, 2.4, 2.9, 2.11. and 2.13.

3.10.1 Measure and record final intermediate and main strut bearing clearances.

3.10.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.10.1 to the SUPERVISOR.

3.11 Reassemble and install stuffing box assembly in accordance with 2.3 and 2.4.

3.11.1 Remove existing, fit, and install new the following parts:

TOTAL QTY	NAME OF	PIECE	REF	FIG	PART
REQ	PART	NO.	NO.	NO.	NO.
9 FT	GLAND PACKING	57	2.3		5324500
8 EACH	CAP SCREW	61	2.3		5531100
8 EACH	LOCKNUT	65	2.3		5315750
16 EACH	WASHER, FLAT	66	2.3		5676900
4 EACH	SHAFT PACKING	68a	2.3		5405710
	PUSHER STUD				

SHIP: USS HURRICANE (PC-3)

4 EACH	NUT, FULL	68b	2.3	5315600
ONE EACH	O-RING, NO. 447	124	2.3	5319201

3.11.2 Prior to installing stern tube stuffing box apply 2 coats of Bar-Rust 235 on the stern tube flange in way of spigot fit.

3.11.3 Measure and record final sizes and clearances in accordance with 2.3 and 2.4.

3.11.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.11.3 to the SUPERVISOR.

3.11.4 Install thread locking compound in accordance with 2.5.

3.12 Install rope guard and gear box coupling on inboard shaft in accordance with 2.3, 2.8, 2.11 and 2.13.

3.12.1 Fabricate, fit and install new rope guard in accordance with 2.3 and 2.8.

3.12.1.1 New rope guard shall conform to the requirements of List of Material of 2.3.

3.12.2 Accomplish the requirements of 009-12 of 2.1, including Table One, Column A, Lines One through 9.

(I) (G) "VERIFY CLEARANCES"

3.12.3 Verify rope guard to propeller hub clearance in accordance with 2.3, and 2.8.

3.12.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.12.3 to the SUPERVISOR.

(I) (G) "FINAL ALIGNMENT"

3.13 Verify final alignment of shafting, transmission and engine, using 2.2 through 2.5 and 2.12 for guidance.

3.13.1 Record test data on Test Data Sheets of 2.12.

3.13.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.13 to the SUPERVISOR.

3.13.2 All structural work shall be completed prior to shaft alignment.

3.13.3 All propulsion system fluids shall be at operating levels.

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3.13.4 Ship shall be waterborne 48 hours prior to final alignment.

3.13.5 Provide 5 mandays of labor and 200 dollars of material to correct final alignment discrepancies.

3.14 Accomplish the requirements of 009-32 of 2.1, for preparation and preservation of new and disturbed surfaces.

3.15 The length of externally threaded fasteners shall be such that a minimum of two threads to a maximum of five threads shall protrude beyond the crown of the tightened nut.

(I) (V) "VERIFY OPERATION"

3.16 Verify satisfactory operation of the stern tube packing during dock and sea trials.

3.16.1 Allowable leakage at stern tube packing: 6-10 drops per minute.

3.16.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.16 to the SUPERVISOR.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.



SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>243-14-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EM01-Z495</u> <u>EM02-Z503</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>PFANTZ</u>

1. SCOPE:

1.1 Title: Propulsion Shafting; repair (DRYDOCK)

1.2 Location of Work:

1.2.1 Drydock

1.2.2 After Engine Room (3-36-0-E)

1.2.3 Forward Engine Room (3-29-0-E)

1.3 Identification:

1.3.1 Propulsion Shaft No. 4

2. REFERENCES:

2.1 Standard Items

2.2 S9086-HM-STM-010/CH-243, Propulsion Shafting

2.3 243-6736967 Rev K, Propulsion Shaft Details

2.4 161-6736936 Rev D, Stern Tube Installation Details

2.5 S9086-HN-STM-010/CH-244, Propulsion Bearings and Seals

2.6 161-6736941 Rev H, Main Shaft Strut Installation

2.7 161-6736942 Rev H, Intermediate Shaft Strut Installation

2.8 201-6736981 Rev D, Propulsion Configuration

2.9 161-6736938 Rev F, Main Strut Details

2.10 161-6736939 Rev F, Intermediate Shaft Strut Details

2.11 243-6736968 Rev D, Hyd Nut & Oil Inject Eqpt Shaft Instl

2.12 6B233C405 Rev F, Propulsion Alignment Final Check

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2.13 243-5107134, Propeller, Gearbox and Muff Coupling  
Installation/Removal

3. REQUIREMENTS:

3.1 Remove rope guard in accordance with 2.3 and 2.8.

3.2 Remove gear box coupling in accordance with 2.3, 2.8, 2.11 and 2.13.

3.2.1 Clean gear box coupling free of foreign matter leaving no residue or injurious effect.

(I) (G) "VISUAL INSPECTION"

3.2.2 Visually inspect gear box coupling for damage or deterioration in accordance with 2.3 and 2.8.

3.3 Disassemble and remove stern tube stuffing box assembly from packing area in accordance with 2.3 and 2.4.

3.3.1 Clean each part, including packing journal and forward stern tube flange area, free of foreign matter, leaving no residue or injurious effects.

(I) "WEAR AND DEFECTS"

3.3.2 Inspect each part for wear and defects, including stern tube forward flange area for deterioration using 2.3 and 2.4 for accept or reject criteria.

3.3.3 Measure packing journal at 90 degree increments, using 2.3 for accept or reject criteria.

3.3.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.3.2 and 3.3.3 to the SUPERVISOR.

3.4 Disassemble the bulkhead seal assembly in accordance with 2.3 and 2.5.

3.4.1 Measure and record sizes and clearances of each wearing part and fit area, using 2.3 and 2.5 for guidance.

3.4.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.4.1 to the SUPERVISOR.

3.4.2 Clean each part free of foreign matter leaving no residue or injurious effects.

(I) (G) "SHAFT RUNOUT"

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3.5 Measure shaft runout of propulsion shaft with dial indicators located at the large and small ends of the propeller shaft taper, forward and after ends of strut bearing journals and aft end of the stern tube bearing journal. Position one indicator at each location.

3.5.1 Position indicator at the top centerline of the shaft.

3.5.2 Establish a positive communication system between the turning operator and drydock.

3.5.3 Lubricate each strut and stern tube bearing by applying free flowing clean water to each bearing. Application of water shall be maintained for the entire shaft turning operation.

3.5.4 Lubricate the pedestal bearing with grease conforming to DOD-G-24508.

(I) (G) "ROTATION"

3.5.5 Rotate shaft in the ahead direction for three complete revolutions. Record dial indicator readings simultaneously at each location for each 45 degrees of shaft rotation.

3.5.6 Plot runout readings recorded in 3.5.5 Determine total indicator run out for each location.

3.5.6.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.5.5 and 3.5.6 to the SUPERVISOR.

3.6 Remove the outboard and inboard propeller shafts and muff coupling in accordance with 2.3, 2.4, 2.5, 2.11 and 2.13.

3.6.1 Establish matchmarks and identification numbers on coupling, coupling bolt hole, bolt, nut, key and keyway.

3.6.2 Clean shafting coupling free of foreign matter, leaving no residue or injurious effects.

(I) (G) "WEAR AND DEFECTS"

3.6.3 Inspect shaft section for wear and defects in accordance with 2.2 and 2.3.

3.6.4 Inspect shaft section for eccentricity and straightness.

3.6.4.1 The maximum eccentric variation of radius at any point of the journal during a complete revolution shall not exceed 0.010 inch.

3.6.4.2 The maximum eccentricity in any shaft section with

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respect to axis of rotation shall be limited to 0.010 inch

3.7 Inspect main and intermediate strut assemblies for structural integrity, deterioration, pitting, cracks and areas of damage or distortion, using 2.6, 2.7, 2.9 and 2.10 as guidance for accept or reject criteria.

3.7.1 Clean each strut, free of foreign matter leaving no residue or injurious effects.

3.7.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.7 to the SUPERVISOR.

3.8 Repair stuffing box assembly in accordance with 2.3 and 2.4.

3.8.1 Restore mating surfaces exposed by disassemble and removal. Repair by removing high spots, burrs, abrasions and foreign matter where removal can be accomplished by hand tools.

3.8.2 Stone stuffing box shaft packing journal to remove high spots.

3.8.3 Chase and tap exposed threaded areas.

3.9 Repair stern tube forward flange area, using 2.3 and 2.4 for guidance.

3.9.1 Accomplish the requirements of 009-09 of 2.1, for repairing stern tube forward flange area from inspection results of 3.3.2.

3.9.1.1 Procedure shall include machining of inner stern tube area to remove deteriorated areas for weld preparation, material to be used for buildup and amount of material added for buildup and machining of stern tube area to design dimensions, using 2.3 and 2.4 for guidance.

3.9.2 Accomplish repairs to stern tube forward flange area in accordance with approved procedure in 3.9.1.

3.9.2.1 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column A, Lines One through 7.

3.9.2.2 Accomplish nondestructive testing in accordance with Line 10.

3.9.3 Machine stern tube forward flange area to design dimensions and finishes, using 2.3 and 2.4 as guidance.

3.9.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.9.3 to the SUPERVISOR.

3.10 Repair the inboard and outboard propeller shaft in accordance with 2.2,

SHIP: USS HURRICANE (PC-3)

using 2.3 and 2.5 for guidance.

3.10.1 Machine skim cut each propeller shaft in way of each packing, seal and bearing journal area, to remove corrosion and pitting, using 2.b, 2.3 and 2.5 for guidance.

3.10.1.1 Maximum amount of material to be machined/skim cut from shaft shall be designated by the SUPERVISOR.

3.11 Install and align the inboard and outboard propeller shafting and install new goverment furnished (GFM see 5.1) muff coupling in accordance with 2.2, 2.3, 2.4, 2.9, 2.11 and 2.13.

3.11.1 Contact the services of a Naval Surface Warfare Center (NSWC) Detachment Norfolk technical representative for guidance in the installation of the muff coupling.

3.11.2 Remove existing and install new muff coupling seal, SKF Products Part No. 412188.

3.11.3 Inboard and outboard shafting shall be installed in accordance with the following:

(I) (G) "SHAFTING REINSTALLATION"

3.11.3.1 Outboard propeller shaft removed in 3.6 shall be reinstalled as the inboard shaft and the inboard shaft removed in 3.6 shall be reinstalled as the outboard shaft.

3.11.4 Measure and record final intermediate and main strut bearing clearances.

3.11.4.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.11.4 to the SUPERVISOR.

3.12 Reassemble and install stuffing box assembly in accordance with 2.3 and 2.4.

3.12.1 Remove existing, fit, and install new the following parts:

TOTAL QTY REQUIRED	NAME OF PART	PIECE NO.	REF NO.	
9 FT	Gland Packing	57	2.3	5324500
8 Each	Cap Screw	61	2.3	5531100
8 Each	Locknut	65	2.3	5315760
16 Each	Washer, Flat	66	2.3	5676900
4 Each	Shaft Packing	68a	2.3	5404710
	Pusher Stud			

SHIP: USS HURRICANE (PC-3)

4 Each	Nut, Full	68c	2.3	5315580
One Each	O-ring No.447	124	2.3	5319201

3.12.2 Prior to installing stern tube stuffing box apply 2 coats of bar-rust 235 on the stern tube flange in way of spigot fit.

3.12.3 Measure and record final sizes and clearances in accordance with 2.3 and 2.4.

3.12.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.12.3 to the SUPERVISOR.

3.12.4 Install thread locking compound in accordance with 2.5.

3.13 Install bulkhead seal assembly in accordance with 2.3 and 2.5.

3.13.1 Remove existing, fit, and install new the following parts:

TOTAL QTY REQUIRED	NAME OF PART	PIECE NO.	REF NO.	PART NO.
One	Diaphragm Assembly John-Crane		2.3	H70300/130/2 John-Crane
6 Each	Skt Hd Capscrew	100	2.3	5509351
2 Each	Screw Cap	101	2.3	5531689
6 Each	Nut 1/2 Inch	103	2.3	5314500
2 Each	Nut Half	104	2.3	5311360
2 Sq Ft	Gasket Material	122	2.3	5161811
14 Each	Washer Flat	123	2.3	5676700

3.13.2 Measure and record final sizes and clearances in accordance with 2.3.

3.13.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.13.2 to the SUPERVISOR.

3.14 Install rope guard and gear box coupling on inboard shaft in accordance with 2.c, 2.h, 2.11 and 2.13.

3.14.1 Fabricate, fit and install new rope guard in accordance with 2.3 and 2.8.

3.14.1.1 New rope guard shall conform to the requirements of List of Material of 2.3.

3.14.2 Accomplish the requirements of 009-12 of 2.1, including Table One, Column A, Lines One through 9.

SHIP: USS HURRICANE (PC-3)

(I) (G) "VERIFY CLEARANCES"

3.14.3 Verify rope guard to propeller hub clearance in accordance with 2.3, 2.8 and 2.6 for guidance.

3.14.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.14.3 to the PORT ENGINEER.

(I) (G) "FINAL ALIGNMENT"

3.15 Verify final alignment of shafting, transmission and engine, using 2.2 through 2.5 and 2.12 for guidance.

3.15.1 Record test data on Test Data Sheets of 2.12.

3.15.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.15 to the SUPERVISOR.

3.15.2 All structural work shall be completed prior to shaft alignment.

3.15.3 All propulsion system fluids shall be at operating levels.

3.15.4 Ship shall be waterborne 48 hours prior to final alignment.

3.15.5 Provide 5 mandays of labor and 200 dollars of material to correct final alignment discrepancies.

3.16 Accomplish the requirements of 009-32 of 2.1, for new and disturbed surfaces.

3.17 The length of externally threaded fasteners shall be such that a minimum of two threads to a maximum of five threads shall protrude beyond the crown of the tightened nut.

(I) (V) "VERIFY OPERATION"

3.18 Verify satisfactory operation of the stern tube packing during dock and sea trials.

3.18.1 Allowable leakage at stern tube packing: 6-10 drops per minute.

3.18.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.18 to the SUPERVISOR.

4. NOTES:

4.1 Technical representative in 3.11.1 shall be contacted from the following office: Naval Surface Warfare Center (NSWC) Detachment Norfolk (757) 686-7978  
POC: Larry Puckette

SHIP: USS HURRICANE (PC-3)

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1.	One	EA	Muff Coupling	25	2.3	None	3.11
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5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.



SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>244-11-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EM01-Z506</u> <u>EM02-Z505</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>PFANTZ</u>

1. SCOPE:

1.1 Title: Propulsion Shaft Bearings; replace (DRYDOCK)

1.2 Location of Work:

1.2.1 Drydock

1.2.2 Underwater Hull (Stern)

1.2.3 Fwd Engine Room (3-29-0-E)

1.2.4 Aft Engine Room (3-36-0-E)

1.3 Identification:

1.3.1 Propulsion Shaft No. 1 Bearings

2. REFERENCES:

2.1 Standard Items

2.2 S9086-HM-STM-010/CH-243, Propulsion Shafting

2.3 243-6736967 Rev K, Propulsion Shaft Details

2.4 161-6736936 Rev D, Stern Tube Installation Details

2.5 S9086-HN-STM-010/CH-244, Propulsion Bearings and Seals

2.6 161-6736941 Rev H, Main Shaft Strut Installation

2.7 161-6736942 Rev H, Intermediate Shaft Strut Installation

2.8 201-6736981 Rev D, Propulsion Configuration

3. REQUIREMENTS:

3.1 Remove the existing stern tube, intermediate fwd, intermediate aft and main strut bearings in accordance with 2.2 through 2.8.

SHIP: USS HURRICANE (PC-3)

3.2 Disassemble the line shaft pedestal bearing assembly in accordance with 2.3 and 2.5.

3.2.1 Clean each part, free of foreign matter, leaving no residue or injurious effects.

3.2.2 Measure and record sizes and clearances of each wearing part and fit area, using 2.3 and 2.5 for guidance.

(I) "WEAR AND DEFECTS"

3.2.3 Inspect each part for wear and defects, using 2.3 and 2.5 as guidance for accept or reject criteria.

3.2.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.1, 3.2, 3.2.2, and 3.2.3 to the SUPERVISOR.

3.3 Repair the line shaft bearing housing, stern tube, intermediate fwd, intermediate aft and main struts in accordance with the following, using 2.2 through 2.8 as guidance.

3.3.1 Restore mating surfaces exposed by disassemble and removal. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

3.3.2 Chase and tap exposed threaded areas.

3.4 Install the (Government Furnished Material listed in 5.1) line shaft bearing, stern tube bearing, intermediate fwd, intermediate aft and main strut bearing in accordance with 2.2 through 2.8.

3.4.1 Remove existing, fit, and install new the following parts:

TOTAL QTY REQUIRED	NAME OF PART	PIECE NO.	REF NO.	DWG PART
6	Cap Screw	1E	2.4	5504800
6	Cap Screw	1C	2.6	5504800
6	Washer, Flat	1D	2.6	5675700

3.4.2 Install thread locking compound in accordance with 2.4 and 2.6.

3.4.3 Template and drill mounting flange holes and drill and tap jacking bolt holes on new stern tube, and main strut bearing installed in 3.4, in accordance with 2.4 and 2.6.

3.4.4 Template and drill set screw holes for the new intermediate fwd and intermediate aft strut bearing.

SHIP: USS HURRICANE (PC-3)

3.5 Accomplish the requirements of 009-32 of 2.1 for surface preparation and preservation of new and disturbed surfaces.

3.6 The length of externally threaded fasteners shall be such that a minimum of two threads to a maximum of five threads shall protrude beyond the crown of the tightened nut.

3.7 Submit one legible copy, in hard copy or electronic media, of a report listing final bearing clearances and journal size measurements no later than two working days prior to undocking of the ship to the SUPERVISOR.

(I) (V) "VERIFY OPERATION"

3.8 Verify satisfactory operation propulsion shaft bearings during dock and sea trials.

3.8.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.8 to the SUPERVISOR.

4. NOTES:

4.1 Record bearing clearances, journal sizes and repairs in docking report, Work Item 997-11-001.

4.2 This Work Item to be worked in conjunction with Work Item 243-11-001, Propulsion Shafting; repair (DRYDOCK)

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

TOTAL						
QUANTITY		NAME OF	PIECE	REF	NATIONAL	PARA
<u>PROVIDED</u>		<u>PART</u>	<u>NO.</u>	<u>NO.</u>	<u>STOCK NO.</u>	<u>NO.</u>
1. One EA		Bearing, Stern Tube	1D	2.4	None	3.4
2. One EA		Bearing, Main Strut	1B	2.6	None	3.4
3. One EA		Bearing Intermediate Strut, Fwd	5	2.7	None	3.4
4. One EA		Bearing, Intermediate Strut, Aft	1C	2.7	None	3.4
5. One EA		Bearing, Line Shaft	6	2.7	None	3.4

SHIP: USS HURRICANE (PC-3)

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>244-12-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EM02-Z507</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>PFANTZ</u>

1. SCOPE:

1.1 Title: Propulsion Shaft Bearings; replace (DRYDOCK)

1.2 Location of Work:

1.2.1 Drydock

1.2.2 Underwater Hull (Stern)

1.2.3 Aft Engine Room (3-36-0-E)

1.3 Identification:

1.3.1 Propulsion Shaft No. 2 Bearings

2. REFERENCES:

2.1 Standard Items

2.2 S9086-HM-STM-010/CH-243, Propulsion Shafting

2.3 243-6736967 Rev K, Propulsion Shaft Details

2.4 161-6736936 Rev D, Stern Tube Installation Details

2.5 S9086-HN-STM-010/CH-244, Propulsion Bearings and Seals

2.6 161-6736941 Rev H, Main Shaft Strut Installation

2.7 161-6736942 Rev H, Intermediate Shaft Strut Installation

2.8 201-6736981 Rev D, Propulsion Configuration

3. REQUIREMENTS:

3.1 Remove the existing stern tube, intermediate and main strut bearings in accordance with 2.2 through 2.8.

3.2 Repair the stern tube, intermediate and main strut bearing housing in accordance with the following, using 2.2 through 2.8 as guidance.

SHIP: USS HURRICANE (PC-3)

3.2.1 Restore mating surfaces exposed by disassemble and removal. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

3.2.2 Chase and tap exposed threaded areas.

3.3 Install the (Government Furnished Material listed in 5.1) stern tube bearing, intermediate and main strut bearing in accordance with 2.2 through 2.8.

3.3.1 Remove existing, fit, and install new the following parts:

TOTAL QTY REQUIRED	NAME OF PART	PIECE NO.	REF NO.	DWG PART REQUIRED
6	Cap Screw	1E	2.4	5504800
6	Cap Screw	1C	2.6	5504800
6	Washer, Flat	1D	2.6	5675700

3.3.2 Install thread locking compound in accordance with 2.4 and 2.6.

3.3.3 Template and drill mounting flange holes and drill and tap jacking bolt holes on new stern tube, and main strut bearing installed in 3.3, in accordance with 2.4 and 2.6.

3.3.4 Template and drill set screw holes for the new intermediate strut bearing.

3.4 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

3.5 The length of externally threaded fasteners shall be such that a minimum of two threads to a maximum of five threads shall protrude beyond the crown of the tightened nut.

3.6 Submit one legible copy, in hard copy or electronic media, of a report listing final bearing clearances and journal size measurements no later than two working days prior to undocking of the ship to the SUPERVISOR.

(I) (V) "VERIFY OPERATION"

3.7 Verify satisfactory operation propulsion shaft bearings during dock and sea trials.

3.7.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.7 to the SUPERVISOR.

#### 4. NOTES:

4.1 Record bearing clearances, journal sizes and repairs in docking report,

SHIP: USS HURRICANE (PC-3)

Work Item 997-11-001.

4.2 This Work Item to be worked in conjunction with Work Item 243-12-001, Propulsion Shafting; repair (DRYDOCK)

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

TOTAL QUANTITY <u>PROVIDED</u>	NAME OF <u>PART</u>	PIECE <u>NO.</u>	REF <u>NO.</u>	NATIONAL <u>STOCK NO.</u>	PARA <u>NO.</u>
1. One EA	Bearing, Stern Tube	1D	2.4	None	3.3
2. One EA	Bearing, Main Strut	1B	2.6	None	3.3
3. One EA	Bearing, Intermediate Strut	3C	2.7	None	3.3

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>244-13-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EM02-Z508</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>PFANTZ</u>

1. SCOPE:

1.1 Title: Propulsion Shaft Bearings; replace (DRYDOCK)

1.2 Location of Work:

1.2.1 Drydock

1.2.2 Underwater Hull (Stern)

1.2.3 Aft Engine Room (3-36-0-E)

1.3 Identification:

1.3.1 Propulsion Shaft No. 3 Bearings

2. REFERENCES:

2.1 Standard Items

2.2 S9086-HM-STM-010/CH-243, Propulsion Shafting

2.3 243-6736967 Rev K, Propulsion Shaft Details

2.4 161-6736936 Rev D, Stern Tube Installation Details

2.5 S9086-HN-STM-010/CH-244, Propulsion Bearings and Seals

2.6 161-6736941 Rev H, Main Shaft Strut Installation

2.7 161-6736942 Rev H, Intermediate Shaft Strut Installation

2.8 201-6736981 Rev D, Propulsion Configuration

3. REQUIREMENTS:

3.1 Remove the existing stern tube, intermediate and main strut bearings in accordance with 2.2 through 2.8.

3.2 Repair the stern tube, intermediate and main strut bearing housing in accordance with the following, using 2.2 through 2.8 as guidance.



SHIP: USS HURRICANE (PC-3)

3.2.1 Restore mating surfaces exposed by disassemble and removal. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

3.2.2 Chase and tap exposed threaded areas.

3.3 Install the (Government Furnished Material listed in 5.1) stern tube bearing, intermediate and main strut bearing in accordance with 2.2 through 2.8.

3.3.1 Remove existing, fit, and install new the following parts:

TOTAL QTY REQUIRED	NAME OF PART	PIECE NO.	REF NO.	DWG PART REQUIRED
6	Cap Screw	1E	2.4	5504800
6	Cap Screw	1C	2.6	5504800
6	Washer, Flat	1D	2.6	5675700

3.3.2 Install thread locking compound in accordance with 2.4 and 2.6.

3.3.3 Template and drill mounting flange holes and drill and tap jacking bolt holes on new stern tube, and main strut bearing installed in 3.3, in accordance with 2.4 and 2.6.

3.3.4 Template and drill set screw holes for the new intermediate strut bearing.

3.4 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

3.5 The length of externally threaded fasteners shall be such that a minimum of two threads to a maximum of five threads shall protrude beyond the crown of the tightened nut.

3.6 Submit one legible copy, in hard copy or electronic media, of a report listing final bearing clearances and journal size measurements no later than two working days prior to undocking of the ship to the SUPERVISOR.

(I) (V) "VERIFY OPERATION"

3.7 Verify satisfactory operation propulsion shaft bearings during dock and sea trials.

3.7.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.7 to the SUPERVISOR.

#### 4. NOTES:

4.1 Record bearing clearances, journal sizes and repairs in docking report,

SHIP: USS HURRICANE (PC-3)

Work Item 997-11-001.

4.2 This Work Item to be worked in conjunction with Work Item 243-12-001, Propulsion Shafting; repair (DRYDOCK)

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

TOTAL QUANTITY <u>PROVIDED</u>	NAME OF <u>PART</u>	PIECE <u>NO.</u>	REF <u>NO.</u>	NATIONAL <u>STOCK NO.</u>	PARA <u>NO.</u>
1. One EA	Bearing, Stern Tube	1D	2.4	None	3.3
2. One EA	Bearing, Main Strut	1B	2.6	None	3.3
3. One EA	Bearing, Intermediate Strut	3C	2.7	None	3.3

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>244-14-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EM01-Z510</u> <u>EM02-Z509</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>PFANTZ</u>

1. SCOPE:

1.1 Title: Propulsion Shaft Bearings; replace (DRYDOCK)

1.2 Location of Work:

1.2.1 Drydock

1.2.2 Underwater Hull (Stern)

1.2.3 Fwd Engine Room (3-29-0-E)

1.2.4 Aft Engine Room (3-36-0-E)

1.3 Identification:

1.3.1 Propulsion Shaft No. 4 Bearings

2. REFERENCES:

2.1 Standard Items

2.2 S9086-HM-STM-010/CH-243, Propulsion Shafting

2.3 243-6736967 Rev K, Propulsion Shaft Details

2.4 161-6736936 Rev D, Stern Tube Installation Details

2.5 S9086-HN-STM-010/CH-244, Propulsion Bearings and Seals

2.6 161-6736941 Rev H, Main Shaft Strut Installation

2.7 161-6736942 Rev H, Intermediate Shaft Strut Installation

2.8 201-6736981 Rev D, Propulsion Configuration

3. REQUIREMENTS:

3.1 Remove the existing stern tube, intermediate fwd, intermediate aft and main strut bearings in accordance with 2.2 through 2.8.

SHIP: USS HURRICANE (PC-3)

3.2 Disassemble the line shaft pedestal bearing assembly in accordance with 2.3 and 2.5.

3.2.1 Clean each part, free of foreign matter, leaving no residue or injurious effects.

3.2.2 Measure and record sizes and clearances of each wearing part and fit area, using 2.3 and 2.5 for guidance.

(I) "WEAR AND DEFECTS"

3.2.3 Inspect each part for wear and defects, using 2.3 and 2.5 as guidance for accept or reject criteria.

3.2.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.1, 3.2, 3.2.2, and 3.2.3 to the SUPERVISOR.

3.3 Repair the line shaft bearing housing, stern tube, intermediate fwd, intermediate aft and main struts in accordance with the following, using 2.2 through 2.8 as guidance.

3.3.1 Restore mating surfaces exposed by disassemble and removal. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

3.3.2 Chase and tap exposed threaded areas.

3.4 Install the Government Furnished Material listed in 5.1) line shaft bearing, stern tube bearing, intermediate fwd, intermediate aft and main strut bearing in accordance with 2.2 through 2.8.

3.4.1 Remove existing, fit, and install new the following parts:

TOTAL QTY REQUIRED	NAME OF PART	PIECE NO.	REF NO.	DWG PART REQUIRED
6	Cap Screw	1E	2.4	5504800
6	Cap Screw	1C	2.6	5504800
6	Washer, Flat	1D	2.6	5675700

3.4.2 Install thread locking compound in accordance with 2.4 and 2.6.

3.4.3 Template and drill mounting flange holes and drill and tap jacking bolt holes on new stern tube, and main strut bearing installed in 3.4, in accordance with 2.4 and 2.6.

3.4.4 Template and drill set screw holes for the new intermediate fwd and intermediate aft strut bearing.

SHIP: USS HURRICANE (PC-3)

3.5 Accomplish the requirements of 009-32 of 2.1 for surface preparation and preservation of new and disturbed surfaces.

3.6 The length of externally threaded fasteners shall be such that a minimum of two threads to a maximum of five threads shall protrude beyond the crown of the tightened nut.

3.7 Submit one legible copy, in hard copy or electronic media, of a report listing final bearing clearances and journal size measurements no later than two working days prior to undocking of the ship to the SUPERVISOR.

(I) (V) "VERIFY OPERATION"

3.8 Verify satisfactory operation propulsion shaft bearings during dock and sea trials.

3.8.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.8 to the SUPERVISOR.

4. NOTES:

4.1 Record bearing clearances, journal sizes and repairs in docking report, Work Item 997-11-001.

4.2 This Work Item to be worked in conjunction with Work Item 243-14-001, Propulsion Shafting; repair (DRYDOCK)

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

TOTAL						
QUANTITY		NAME OF	PIECE	REF	NATIONAL	PARA
<u>PROVIDED</u>		<u>PART</u>	<u>NO.</u>	<u>NO.</u>	<u>STOCK NO.</u>	<u>NO.</u>
1. One EA		Bearing, Stern Tube	1D	2.4	None	3.4
2. One EA		Bearing, Main Strut	1B	2.6	None	3.4
3. One EA		Port Intermediate Fwd Strut Bearing	5C	2.7	None	3.4
4. One EA		Port Intermediate Aft Strut Bearing	1A	2.7	None	3.4
5. One EA		Bearing, Line Shaft	6	2.3	None	3.4

SHIP: USS HURRICANE (PC-3)

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 245-11-001  
COAR: 16-003 PCN: EM02-Z511  
CMP: NONE  
PLANNER: PFANTZ  
SULLIVAN

1. SCOPE:

1.1 Title: Propeller; clean and balance (DRYDOCK)

1.2 Location of Work:

1.2.1 Drydock

1.3 Identification:

1.3.1 Quantity (One), No.1 Propeller; Mfr.: Bird-Johnson Rotation: CW  
Diameter: 50.394 Inches Number of Blades: 6 Mfr. ID:  
1000540010-1

2. REFERENCES:

2.1 Standard Items

2.2 245-6736985 Rev B, Propeller Details

2.3 243-6736968 Rev D, Hyd Nut & Oil Inject Eqpt Prop Shaft Instl

2.4 243-6736967 Rev K, Propulsion Shaft Details

2.5 S9086-HP-STM-010/CH-245, Propellers

2.6 S9245-AR-TSM-010, Technical Manual for Marine Propeller Inspection  
Repair, and Certification

2.7 T9074-AS-GIB-010/271, Requirements for Nondestructive Testing Methods

2.8 MIL-STD-2035, Nondestructive Testing Acceptance Criteria

2.9 243-5107134, Propeller, Gearbox and Muff Coupling  
Installation/Removal

3. REQUIREMENTS:

3.1 Remove propeller listed in 1.3, in accordance with 2.2, 2.3, 2.4, 2.5,  
using 2.9 for guidance.

SHIP: USS HURRICANE (PC-3)

(I) "INVENTORY"

3.1.1 Accomplish an inventory and inspect the Government Furnished propeller hydraulic removal assembly furnished in 5.1 in accordance with 2.3 and 2.9.

(I) "INSPECT SHAFT THREADS"

3.1.2 Inspect shaft threads for damage. Repair as necessary, use a file to smooth burrs.

3.1.3 Removal of the propeller thread protector nut shall be accomplished without transmission of shock through the propeller shaft to the transmission.

3.1.4 Clean propeller and propeller cap free of foreign matter by scraping and wire brushing using stainless steel brushes or hone blasting. clean to bare metal in accordance with paragraph 245-3.2 of 2.5.

3.1.5 Record identification data stamped on the propeller.

(I) "VISUAL INSPECTION"

3.1.6 Visually inspect propeller and cap for wear and defects, in accordance with 2.2 and 2.6.

3.1.6.1 Visible damage to the propeller shall be reported to the cognizant propeller ISEA. A spare ready-for use issue (RFI) propeller from the Port Engineer will replace a damaged propeller. If the propeller is to be replaced with a (RFI) propeller due to damage, paragraphs 3.1.8 through 3.2.2.1 are not required to be accomplished.

(I) (G) "VERIFY FINISH"

3.1.7 Polish propeller blade to 63 RMS microinch and propeller hub to 125 RMS microinch surface finishes removing a minimum of metal, maintaining design dimensions and contours. The blade tip and edge gauges shall be fitted to assure edge geometry is maintained during the polishing process.

(I) (G) "LIQUID PENETRANT TEST"

3.1.8 Accomplish a liquid penetrant test on the propeller in accordance with 2.6 and 2.7. The accept or reject criteria shall be in accordance with Class 2 of 2.8 and 2.7.

3.1.9 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.1.1, 3.1.2, 3.1.6, 3.1.7 and 3.1.8 to the SUPERVISOR.

(V) (G) "BALANCE AND FINAL INSPECTION"

3.2 Accomplish the requirements of 009-15 of 2.1, for the propeller listed



SHIP: USS HURRICANE (PC-3)

in 1.3.1.

3.2.1 After balancing of propeller is complete, install propeller blade edge protection of canvas and metal edge strips in accordance with paragraph 245-1.3.5 of 2.5.

3.2.2 Visual inspection results, balancing results and waiver requests for propeller shall be approved by NSWC Detachment Norfolk prior to shipping from the repair facility or reinstallation aboard ship. Requests DATE:

3.2.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing visual inspection results, balancing results and waiver requests to Naval Surface Warfare Center (NSWC) Detachment Norfolk via the SUPERVISOR.

3.3 Fit and install propeller removed in 3.1, in accordance with 2.2 through 2.6 and 2.9.

3.3.1 Contact the services of a Naval Surface Warfare Center (NSWC) Detachment Norfolk technical representative for guidance in the installation of the propeller.

(I) (G) "VERIFY CONTACT"

3.3.2 Verify contact (fit) of propeller, using the bluing transfer method in accordance with Notes 700 through 708 of 2.2 for propeller. The contact requirements are provided in Note 702 of 2.2. Plug gauges listed in 5.2 are available from Naval Surface Warfare Center (NSWC) Detachment Norfolk

3.3.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.3.2 to the SUPERVISOR.

3.4 Reinstall propeller thread protector nut on shaft, in accordance with 2.2 through 2.5 and the following:

3.4.1 Remove existing, fit, and install new the following parts:

TOTAL QTY	NAME OF	PIECE	REF	FIGURE	PART
REQ	PART	NO.	NO.	NO.	NO.
4	CAP SCREW	45	2.4		MS-350307-308 1/4-20 X 1" LG
	HEX HEAD				

3.4.2 Install thread locking compound in accordance with 2.4.

(I) (G) "VERIFY TIGHTNESS"

3.4.3 Install thread protector nut hand tight against propeller hub.

SHIP: USS HURRICANE (PC-3)

3.4.4 Mark position of two holes to be drilled on the propeller hub and remove the thread protector nut.

3.4.5 Drill the two holes with a No. 7 drill bit on the propeller hub (1-1/2" inches deep).

3.4.6 Drill two additional holes with a No.7 drill bit clockwise, one inch from the previously drilled holes (1-1/2" inches deep), 180 degrees apart.

3.4.6.1 Note: The additional holes will allow for better alignment between the slots.

3.4.7 Tap the four holes with a 1/4 X 20UNC tap.

3.4.8 Screw the thread protector nut hand tight against the propeller hub.

3.4.9 Align two slots (180 degrees apart) for installation of two 1/4-20 UNC X one inch stainless steel locking bolts piece No. 45 of 2.4.

(I) (G) "VERIFY TORQUE"

3.4.9.1 Install and torque stainless steel locking bolts piece No. 45 of 2.4 to 5.5 ft lb (7.5 NM).

3.4.10 Install propeller cap in accordance with 2.2.

3.5 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

(I) (G) "INVENTORY"

3.6 Accomplish an inventory of the propeller removal assembly, inventory shall be conducted with a designated government agent before and after usage.

3.6.1 Clean all components of the propeller removal tool kit, removing all surface rust and injurious effects. Coat all exposed metal components with a thin layer of preservative oil and wrap hydraulic nut and pumps with a protective wrapping prior to returning tool kit to the Government.

3.6.2 Top off fluids in oil containers. seal and band container and deliver to Naval Surface Warfare Center (NSWC) Detachment Norfolk.

3.7 Just prior to undocking remove blade edge protection installed in 3.2.6 and coat propeller with corrosion preventative conforming to MIL-C-11796, Class 3.

#### 4. NOTES:

4.1 Propeller hub data and propeller fit shall be included in docking report, Work Item 997-11-001.

SHIP: USS HURRICANE (PC-3)

4.2 Technical representative in 3.3.1 shall be contacted from the following office: Naval Surface Warfare Center (NSWC) Detachment Norfolk (757) 686-7978  
POC: Larry Puckette

4.3 Government Furnished Material listed in 5.1 through 5.5 shall be furnished by same office listed in 4.2 and shall be returned after completion of required work.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1.	One	EA	Propeller Hydraulic Removal Assembly	None	2.3	None	3.1.1
2.	One	EA	Plug Gauge	None	2.2	None	3.1.1
3.	One	EA	Leading Edge Gauge (RH)	None	2.2	None	3.1.1
4.	One	EA	Trailing Edge Gauges (RH)	None	2.2	None	3.1.1
5.	One	EA	Tip Gauges	None	2.2	None	3.1.1

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 245-12-001  
COAR: 16-003 PCN: EM02-Z512  
CMP: NONE  
PLANNER: PFANTZ

1. SCOPE:

1.1 Title: Propeller; clean and balance (DRYDOCK)

1.2 Location of Work:

1.2.1 Drydock

1.3 Identification:

1.3.1 Quantity (One), No.2 Propeller; Mfr.: Bird-Johnson Rotation:  
CCW Diameter: 50.394 Inches Number of Blades: 6 Mfr. ID:  
1000540010-2

2. REFERENCES:

2.1 Standard Items

2.2 245-6736985 Rev B, Propeller Details

2.3 243-6736968 Rev D, Hyd Nut & Oil Inject Eqpt Prop Shaft Instl

2.4 243-6736967 Rev K, Propulsion Shaft Details

2.5 S9086-HP-STM-010/CH-245, Propellers

2.6 S9245-AR-TSM-010, Technical Manual for Marine Propeller Inspection  
Repair, and Certification

2.7 T9074-AS-GIB-010/271, Requirements for Nondestructive Testing Methods

2.8 MIL-STD-2035, Nondestructive Testing Acceptance Criteria

2.9 243-5107134, Propeller, Gearbox and Muff Coupling  
Installation/Removal

3. REQUIREMENTS:

3.1 Remove propeller listed in 1.3, in accordance with 2.2, 2.3, 2.4, 2.5,  
using 2.9. for guidance.

(I) "INVENTORY"

SHIP: USS HURRICANE (PC-3)

3.1.1 Accomplish an inventory and inspect the Government Furnished propeller hydraulic removal assembly furnished in 5.1 in accordance with 2.3 and 2.9.

(I) "INSPECT SHAFT THREADS"

3.1.2 Inspect shaft threads for damage. Repair as necessary, use a file to smooth burrs.

3.1.3 Removal of the propeller thread protector nut shall be accomplished without transmission of shock through the propeller shaft to the transmission.

3.1.4 Clean propeller and propeller cap free of foreign matter by scraping and wire brushing using stainless steel brushes or hone blasting. clean to bare metal in accordance with paragraph 245-3.2 of 2.5.

3.1.5 Record identification data stamped on the propeller.

(I) "VISUAL INSPECTION"

3.1.6 Visually inspect propeller and cap for wear and defects, in accordance with 2.2 and 2.6.

3.1.6.1 Visible damage to the propeller shall be reported to the cognizant propeller ISEA. A spare ready-for use issue (RFI) propeller from the Port Engineer will replace a damaged propeller. If the propeller is to be replaced with a (RFI) propeller due to damage, paragraphs 3.1.8 through 3.2.2.1 are not required to be accomplished.

(I) (G) "VERIFY FINISH"

3.1.7 Polish propeller blade to 63 RMS microinch and propeller hub to 125 RMS microinch surface finishes removing a minimum of metal, maintaining design dimensions and contours. The blade tip and edge gauges shall be fitted to assure edge geometry is maintained during the polishing process.

(I) (G) "LIQUID PENETRANT TEST"

3.1.8 Accomplish a liquid penetrant test on the propeller in accordance with 2.6 and 2.7. The accept or reject criteria shall be in accordance with Class 2 of 2.8 and 2.7.

3.1.9 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.1.1, 3.1.2, 3.1.6, 3.1.7 and 3.1.8 to the SUPERVISOR.

(V) (G) "BALANCE AND FINAL INSPECTION"

3.2 Accomplish the requirements of 009-15 of 2.1, for the propeller listed in 1.3.1.

SHIP: USS HURRICANE (PC-3)

3.2.1 After balancing of propeller are complete, install propeller blade edge protection of canvas and metal edge strips in accordance with paragraph 245-1.3.5 of 2.5.

3.2.2 Visual inspection results, balancing results and waiver requests for propeller shall be approved by NSWC Detachment Norfolk prior to shipping from the repair facility or reinstallation aboard ship. Requests DATE:

3.2.2.1 Submit one legible copy of a report listing visual inspection results, balancing results and waiver requests to Naval Surface Warfare Center (NSWC) Detachment Norfolk via the SUPERVISOR.

3.3 Fit and install propeller removed in 3.1, in accordance with 2.2 through 2.6 and 2.9.

3.3.1 Contact the services of a Naval Surface Warfare Center (NSWC) Detachment Norfolk technical representative for guidance in the installation of the propeller.

(I) (G) "VERIFY CONTACT"

3.3.2 Verify contact (fit) of propeller, using the bluing transfer method in accordance with Notes 700 through 708 of 2.2 for propeller. The contact requirements are provided in Note 702 of 2.2 Plug gauges listed in 5.2 are available from Naval Surface Warfare Center (NSWC) Detachment Norfolk

3.3.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.3.2 to the SUPERVISOR.

3.4 Reinstall propeller thread protector nut on shaft, in accordance with 2.2 through 2.5 and the following:

3.4.1 Remove existing, fit, and install new the following parts:

TOTAL QTY REQ	NAME OF PART	PIECE NO.	REF NO.	FIGURE NO.	DWG NO.	PART NO.
4	CAP SCREW					
	HEX HEAD	45	2.2	MS-350307-308		1/4-20 X 1" lg

3.4.2 Install thread locking compound in accordance with 2.4.

(I) (G) "VERIFY TIGHTNESS"

3.4.3 Install thread protector nut hand tight against propeller hub.

3.4.4 Mark position of two holes to be drilled on the propeller hub and remove the thread protector nut.

SHIP: USS HURRICANE (PC-3)

3.4.5 Drill the two holes with a No. 7 drill bit on the propeller hub (1-1/2" inches deep).

3.4.6 Drill two additional holes with a No.7 drill bit clockwise, one inch from the previously drilled holes (1-1/2" inches deep), 180 degrees apart.

3.4.6.1 Note: The additional holes will allow for better alignment between the slots.

3.4.7 Tap the four holes with a 1/4 X 20UNC tap.

3.4.8 Screw the thread protector nut hand tight against the propeller hub.

3.4.9 Align two slots (180 degrees apart) for installation of two 1/4-20 UNC X one inch stainless steel locking bolts piece No. 45 of 2.4.

(I) (G) "VERIFY TORQUE"

3.4.9.1 Install and torque stainless steel locking bolts piece No. 45 of 2.4 to 5.5 ft lb (7.5 NM).

3.4.10 Install propeller cap in accordance with 2.2.

3.5 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

(I) (G) "INVENTORY"

3.6 Accomplish an inventory of the propeller removal assembly, inventory shall be conducted with a designated government agent before and after usage.

3.6.1 Clean all components of the propeller removal tool kit, removing all surface rust and injurious effects. Coat all exposed metal components with a thin layer of preservative oil and wrap hydraulic nut and pumps with a protective wrapping prior to returning tool kit to the Government.

3.6.2 Top off fluids in oil containers. seal and band container and deliver to Naval Surface Warfare Center (NSWC) Detachment Norfolk.

3.7 Just prior to undocking remove blade edge protection installed in 3.2.6 and coat propeller with corrosion preventative conforming to MIL-C-11796, Class 3.

#### 4. NOTES:

4.1 Propeller hub data and propeller fit shall be included in docking report, Work Item 997-11-001.

4.2 Technical representative in 3.3.1 shall be contacted from the following office: Naval Surface Warfare Center (NSWC) Detachment Norfolk (757) 686-7978

SHIP: USS HURRICANE (PC-3)

POC: Larry Puckette

4.3 Government Furnished Material listed in 5.1 through 5.5 shall be furnished by same office listed in 4.2 and shall be returned after required repairs are completed.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1.	One	EA	Propeller Hydraulic Removal Assembly	None	2.3	None	3.1.1
2.	One	EA	Plug Gauge	None	2.2	None	3.1.1
3.	One	EA	Leading Edge Gauges (LH)	None	2.2	None	3.1.1
4.	One	EA	Trailing Edge Gauges (LH)	None	2.3	None	3.1.1
5.	One	EA	Tip Gauges	None	2.2	None	3.1.1

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.



SHIP: USS HURRICANE (PC-3) ITEM NO: 245-13-001  
COAR: 16-003 PCN: EM02-Z513  
CMP: NONE  
PLANNER: PFANTZ

1. SCOPE:

1.1 Title: Propeller; clean and balance (DRYDOCK)

1.2 Location of Work:

1.2.1 Drydock

1.3 Identification:

1.3.1 Quantity (One), No.3 Propeller; Mfr.: Bird-Johnson Rotation: CW  
Diameter: 50.394 Inches Number of Blades: 6 Mfr. ID:  
1000540010-1

2. REFERENCES:

2.1 Standard Items

2.2 245-6736985 Rev B, Propeller Details

2.3 243-6736968 Rev D, Hyd Nut & Oil Inject Eqpt Prop Shaft Instl

2.4 243-6736967 Rev K, Propulsion Shaft Details

2.5 S9086-HP-STM-010/CH-245, Propellers

2.6 S9245-AR-TSM-010, Technical Manual for Marine Propeller Inspection  
Repair, and Certification

2.7 T9074-AS-GIB-010/271, Requirements for Nondestructive Testing Methods

2.8 MIL-STD-2035, Nondestructive Testing Acceptance Criteria

2.9 243-5107134, Propeller, Gearbox and Muff Coupling  
Installation/Removal

3. REQUIREMENTS:

3.1 Remove propeller listed in 1.3, in accordance with 2.2, 2.3, 2.4, 2.5,  
using 2.9 for guidance.

(I) "INVENTORY"

SHIP: USS HURRICANE (PC-3)

3.1.1 Accomplish an inventory and inspect the Government Furnished propeller hydraulic removal assembly furnished in 5.1 accordance with 2.3 and 2.9.

(I) "INSPECT SHAFT THREADS"

3.1.2 Inspect shaft threads for damage. Repair as necessary, use a file to smooth burrs.

3.1.3 Removal of the propeller thread protector nut shall be accomplished without transmission of shock through the propeller shaft to the transmission.

3.1.4 Clean propeller and propeller cap free of foreign matter by scraping and wire brushing using stainless steel brushes or hone blasting. clean to bare metal in accordance with paragraph 245-3.2 of 2.5.

3.1.5 Record identification data stamped on the propeller.

(I) "VISUAL INSPECTION"

3.1.6 Visually inspect propeller and cap for wear and defects, in accordance with 2.2 and 2.6.

3.1.6.1 Visible damage to the propeller shall be reported to the cognizant propeller ISEA. A spare ready-for use issue (RFI) propeller from the Port Engineer will replace a damaged propeller. If the propeller is to be replaced with a (RFI) propeller due to damage, paragraphs 3.1.8 through 3.2.2.1 are not required to be accomplished.

(I) (G) "VERIFY FINISH"

3.1.7 Polish propeller blade to 63 RMS microinch and propeller hub to 125 RMS microinch surface finishes removing a minimum of metal, maintaining design dimensions and contours. The blade tip and edge gauges shall be fitted to assure edge geometry is maintained during the polishing process.

(I) (G) "LIQUID PENETRANT TEST"

3.1.8 Accomplish a liquid penetrant test on the propeller in accordance with 2.6 and 2.7. The accept or reject criteria shall be in accordance with Class 2 of 2.8. and 2.7.

3.1.9 Submit four legible copies of a report listing results of the requirements of 3.1.1, 3.1.2, 3.1.6, 3.1.7 and 3.1.8 to the SUPERVISOR.

(V) (G) "BALANCE AND FINAL INSPECTION"

3.2 Accomplish the requirements of 009-15 of 2.1, for the propeller listed in 1.3.1.

3.2.1 After balancing of propeller are complete, install propeller

SHIP: USS HURRICANE (PC-3)

blade edge protection of canvas and metal edge strips in accordance with paragraph 245-1.3.5 of 2.5.

3.2.2 Visual inspection results, balancing results and waiver requests for propeller shall be approved by NSWC Detachment Norfolk prior to shipping from the repair facility or reinstallation aboard ship. Requests DATE:

3.2.2.1 Submit one legible copy of a report listing visual inspection results, balancing results and waiver requests to Naval Surface Warfare Center (NSWC) Detachment Norfolk via the SUPERVISOR.

3.3 Fit and install propeller removed in 3.1, in accordance with 2.2 through 2.6 and 2.9.

3.3.1 Contact the services of a Naval Surface Warfare Center (NSWC) Detachment Norfolk technical representative for guidance in the installation of the propeller.

(I) (G) "VERIFY CONTACT"

3.3.2 Verify contact (fit) of propeller, using the bluing transfer method in accordance with Notes 700 through 708 of 2.2 for propeller. The contact requirements are provided in Note 702 of 2.2. Plug gauges listed in 5.2 are available from Naval Surface Warfare Center (NSWC) Detachment Norfolk

3.3.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.3.2 to the SUPERVISOR.

3.4 Reinstall propeller thread protector nut on shaft, in accordance with 2.2 through 2.5 and the following:

3.4.1 Remove existing, fit, and install new the following parts:

TOTAL QTY REQUIRED	NAME OF PART	PIECE NO.	REF NO.	FIG NO.	DWG NO.	PART
4	CAP SCREW	45	2.4			MS-350507-308, 1/4-20 X 1" LG
	HEX HEAD					

3.4.2 Install thread locking compound in accordance with 2.4.

(I) (G) "VERIFY TIGHTNESS"

3.4.3 Install thread protector nut hand tight against propeller hub.

3.4.4 Mark position of two holes to be drilled on the propeller hub and remove the thread protector nut.

3.4.5 Drill the two holes with a No. 7 drill bit on the propeller hub

SHIP: USS HURRICANE (PC-3)

(1-1/2" inches deep).

3.4.6 Drill two additional holes with a No.7 drill bit clockwise, one inch from the previously drilled holes (1-1/2" inches deep), 180 degrees apart.

3.4.6.1 Note: The additional holes will allow for better alignment between the slots.

3.4.7 Tap the four holes with a 1/4 X 20UNC tap.

3.4.8 Screw the thread protector nut hand tight against the propeller hub.

3.4.9 Align two slots (180 degrees apart) for installation of two 1/4-20 UNC X one inch stainless steel locking bolts piece No. 45 of 2.4.

(I) (G) "VERIFY TORQUE"

3.4.9.1 Install and torque stainless steel locking bolts piece No. 45 of 2.4 to 5.5 ft lb (7.5 NM).

3.4.10 Install propeller cap in accordance with 2.2.

3.5 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

(I) (G) "INVENTORY"

3.6 Accomplish an inventory of the propeller removal assembly, inventory shall be conducted with a designated government agent before and after usage.

3.6.1 Clean all components of the propeller removal assembly, removing all surface rust and injurious effects. Coat all exposed metal components with a thin layer of preservative oil and wrap hydraulic nut and pumps with a protective wrapping prior to returning removal assembly to the Government.

3.6.2 Top off fluids in oil containers. seal and band container and deliver to Naval Surface Warfare Center (NSWC) Detachment Norfolk.

3.7 Just prior to undocking remove blade edge protection installed in 3.2.6 and coat propeller with corrosion preventative conforming to MIL-C-11796, Class 3.

#### 4. NOTES:

4.1 Propeller hub data and propeller fit shall be included in docking report, Work Item 997-11-001.

4.2 Technical representative in 3.3.1 shall be contacted from the following office: Naval Surface Warfare Center (NSWC) Detachment Norfolk (757) 686-7978  
POC: Larry Puckette

SHIP: USS HURRICANE (PC-3)

4.3 Government Furnished Material listed in 5.1 through 5.5 shall be furnished by same office listed in 4.2 and shall be returned after completion of required work.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1.	One	EA	Propeller Hydraulic Removal Assembly	None	2.3	None	3.1.1
2.	One	EA	Plug Gauge	None	2.2	None	3.1.1
3.	One	EA	Leading Edge Gauges (RH)	None	2.2	None	3.1.1
4.	One	EA	Trailing Edge Gauges (RH)	None	2.2	None	3.1.1
5.	One	EA	Tip Gauges	None	2.2	None	3.1.1

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 245-14-001  
COAR: 16-003 PCN: EM02-Z514  
CMP: NONE  
PLANNER: PFANTZ

1. SCOPE:

1.1 Title: Propeller; clean and balance (DRYDOCK)

1.2 Location of Work:

1.2.1 Drydock

1.3 Identification:

1.3.1 Quantity (One), No. 4 Propeller; Mfr.: Bird-Johnson Rotation:  
CCW Diameter: 50.394 Inches Number of Blades: 6 Mfr. ID:  
1000540010-2

2. REFERENCES:

2.1 Standard Items

2.2 245-6736985 Rev B, Propeller Details

2.3 243-6736968 Rev D, Hyd Nut & Oil Inject Eqpt Prop Shaft Instl

2.4 243-6736967 Rev K, Propulsion Shaft Details

2.5 S9086-HP-STM-010/CH-245, Propellers

2.6 S9245-AR-TSM-010, Technical Manual for Marine Propeller Inspection  
Repair, and Certification

2.7 T9074-AS-GIB-010/271, Requirements for Nondestructive Testing Methods

2.8 MIL-STD-2035, Nondestructive Testing Acceptance Criteria

2.9 243-5107134, Propeller, Gearbox and Muff Coupling  
Installation/Removal

3. REQUIREMENTS:

3.1 Remove propeller listed in 1.3, in accordance with 2.2, 2.3, 2.4, 2.5,  
using 2.9 for guidance.

(I) "INVENTORY"

SHIP: USS HURRICANE (PC-3)

3.1.1 Accomplish an inventory and inspect the Government Furnished propeller hydraulic removal assembly furnished in 5.1 in accordance with 2.3 and 2.9

(I) "INSPECT SHAFT THREADS"

3.1.2 Inspect shaft threads for damage. Repair as necessary, use a file to smooth burrs.

3.1.3 Removal of the propeller thread protector nut shall be accomplished without transmission of shock through the propeller shaft to the transmission.

3.1.4 Clean propeller and propeller cap free of foreign matter by scraping and wire brushing using stainless steel brushes or hone blasting. clean to bare metal in accordance with paragraph 245-3.2 of 2.5.

3.1.5 Record identification data stamped on the propeller.

(I) "VISUAL INSPECTION"

3.1.6 Visually inspect propeller and cap for wear and defects, in accordance with 2.2 and 2.6.

3.1.6.1 Visible damage to the propeller shall be reported to the cognizant propeller ISEA. A spare ready-for use issue (RFI) propeller from the Port Engineer will replace a damaged propeller. If the propeller is to be replaced with a (RFI) propeller due to damage, paragraphs 3.1.8 through 3.2.2.1 are not required to be accomplished.

(I) (G) "VERIFY FINISH"

3.1.7 Polish propeller blade to 63 RMS microinch and propeller hub to 125 RMS microinch surface finishes removing a minimum of metal, maintaining design dimensions and contours. The blade tip and edge gauges shall be fitted to assure edge geometry is maintained during the polishing process.

(I) (G) "LIQUID PENETRANT TEST"

3.1.8 Accomplish a liquid penetrant test on the propeller in accordance with 2.6 and 2.7 The accept or reject criteria shall be in accordance with Class 2 of 2.8 and 2.7.

3.1.9 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.1.1, 3.1.2, 3.1.6, 3.1.7, and 3.1.8 to the SUPERVISOR.

(V) (G) "BALANCE AND FINAL INSPECTION"

3.2 Accomplish the requirements of 009-15 of 2.1, for the propeller listed in 1.3.1.

SHIP: USS HURRICANE (PC-3)

3.2.1 After balancing of propeller are complete, install propeller blade edge protection of canvas and metal edge strips in accordance with paragraph 245-1.3.5 of 2.5.

3.2.2 Visual inspection results, balancing results and waiver requests for propeller shall be approved by NSWC Detachment Norfolk prior to shipping from the repair facility or reinstallation aboard ship. Requests DATE:

3.2.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing visual inspection results, balancing results and waiver requests to Naval Surface Warfare Center (NSWC) Detachment Norfolk via the SUPERVISOR.

3.3 Fit and install propeller removed in 3.1, in accordance with 2.2 through 2.6 and 2.9.

3.3.1 Contact the services of a Naval Surface Warfare Center (NSWC) Detachment Norfolk technical representative for guidance in the installation of the propeller.

(I) (G) "VERIFY CONTACT"

3.3.2 Verify contact (fit) of propeller, using the bluing transfer method in accordance with Notes 700 through 708 of 2.2 for propeller. The contact requirements are provided in Note 702 of 2.2 Plug gauges listed in 5.2 are available from Naval Surface Warfare Center (NSWC) Detachment Norfolk

3.3.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.3.2 to the SUPERVISOR.

3.4 Reinstall propeller thread protector nut on shaft, in accordance with 2.2 through 2.5 and the following:

3.4.1 Remove existing, fit, and install new the following parts:

TOTAL QTY REQ	NAME OF PART	PIECE NO.	REF NO.	FIGURE NO.	DWG NO.	PART NO.
4	CAP SCREW HEX HEAD	45	2.2	MS-350307-308	1/4-20 X 1 in lg	

3.4.2 Install thread locking compound in accordance with 2.4.

(I) (G) "VERIFY TIGHTNESS"

3.4.3 Install thread protector nut hand tight against propeller hub.

3.4.4 Mark position of two holes to be drilled on the propeller hub and



SHIP: USS HURRICANE (PC-3)

remove the thread protector nut.

3.4.5 Drill the two holes with a No. 7 drill bit on the propeller hub (1-1/2" inches deep).

3.4.6 Drill two additional holes with a No.7 drill bit clockwise, one inch from the previously drilled holes (1-1/2" inches deep), 180 degrees apart.

3.4.6.1 Note: The additional holes will allow for better alignment between the slots.

3.4.7 Tap the four holes with a 1/4 X 20UNC tap.

3.4.8 Screw the thread protector nut hand tight against the propeller hub.

3.4.9 Align two slots (180 degrees apart) for installation of two 1/4-20 UNC X one inch stainless steel locking bolts piece No. 45 of 2.4.

(I) (G) "VERIFY TORQUE"

3.4.9.1 Install and torque stainless steel locking bolts piece No. 45 of 2.4 to 5.5 ft lb (7.5 NM).

3.4.10 Install propeller cap in accordance with 2.2.

3.5 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

(I) (G) "INVENTORY"

3.6 Accomplish an inventory of the propeller removal assembly, inventory shall be conducted with a designated government agent before and after usage.

3.6.1 Clean all components of the propeller removal tool kit, removing all surface rust and injurious effects. Coat all exposed metal components with a thin layer of preservative oil and wrap hydraulic nut and pumps with a protective wrapping prior to returning tool kit to the Government.

3.6.2 Top off fluids in oil containers. Seal and band container and deliver to Naval Surface Warfare Center (NSWC) Detachment Norfolk.

3.7 Just prior to undocking remove blade edge protection installed in 3.2.6 and coat propeller with corrosion preventative conforming to MIL-C-11796, Class 3.

#### 4. NOTES:

4.1 Propeller hub data and propeller fit shall be included in docking report, Work Item 997-11-001.

SHIP: USS HURRICANE (PC-3)

4.2 Technical representative in 3.3.1 shall be contacted from the following office: Naval Surface Warfare Center (NSWC) Detachment Norfolk (757) 686-7978

POC: Larry Puckette

4.3 Government Furnished Material listed in 5.1 through 5.5 shall be furnished by same office listed in 4.2 and shall be returned after completion of required work.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1.	One	EA	Propeller Hydraulic Removal Assembly	None	2.3	None	3.1.1
2.	One	EA	Plug Gauges	None	2.2	None	3.1.1
3.	One	EA	Leading Edge Gauges (LH)	None	2.2	None	3.1.1
4.	One	EA	Trailing Edge Gauges (LH)	None	2.2	None	3.1.1
5.	One	EA	Tip Gauges	None	2.2	None	3.1.1

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>251-41-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EM01-Z515</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>PFANTZ</u>

1. SCOPE:

1.1 Title: Starboard Engine Room Air Intake; clean and inspect

1.2 Location of Work:

1.2.1 Forward Engine Room 3-29-0-E

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 Systems and Specifications, Steel Structures Painting Manual, Volume 2

2.3 631-6737118 Rev M, Ship's Painting Schedule

3. REQUIREMENTS:

3.1 Accomplish a power tool cleaning of the propulsion engine air intake surfaces, located in compartment listed in 1.2, removing corrosion, debris, dirt. Accomplish the requirements of Surface Preparation Specification SSPC-SP-3 of 2.2.

3.2 Accomplish a visual inspection of surfaces of air intake for structural discrepancies, cracks, damage or deformation.

3.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.2 to the SUPERVISOR, noting exact locations and sizes of discrepancies and recommendations for repairs.

3.3 Apply one coat of formula 150, conforming to Mil-P-24441, to prime coat bare metal surfaces of air intakes cleaned in 3.1.

3.3.1 Apply one coat of flat black, overall surfaces of air intake trunks in accordance with Line 11, Page 5 - 13 of 2.3.

SHIP: USS HURRICANE (PC-3)

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3)

ITEM NO: 251-42-001

COAR: 16-003

PCN: EM01-Z516

CMP: NONE

PLANNER: PFANTZ

1. SCOPE:

1.1 Title: Port Engine Room Air Intake; clean and inspect

1.2 Location of Work:

1.2.1 Aft Engine Room 3-36-0-E

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 Systems and Specifications, Steel Structures Painting Manual, Volume 2

2.3 631-6737118 Rev M, Ship's Painting Schedule

3. REQUIREMENTS:

3.1 Accomplish a power tool cleaning of the propulsion engine air intake surfaces, located in compartment listed in 1.2, removing corrosion, debris, dirt. Accomplish the requirements of Surface Preparation Specification SSPC-SP-3 of 2.2.

3.2 Accomplish a visual inspection of surfaces of air intake for structural discrepancies, cracks, damage or deformation.

3.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.2 to the SUPERVISOR, noting exact locations and sizes of discrepancies and recommendations for repairs.

3.3 Apply one coat of formula 150, conforming to Mil-P-24441, to prime coat bare metal surfaces of air intakes cleaned in 3.1.

3.3.1 Apply one coat of flat black, overall surfaces of air intake trunks in accordance with Line 11, Page 5 - 13 of 2.3.

SHIP: USS HURRICANE (PC-3)

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3)

ITEM NO: 251-43-001

COAR: 16-003

PCN: EM01-Z517

CMP: NONE

PLANNER: PFANTZ

1. SCOPE:

1.1 Title: Starboard Engine Room Air Intake; clean and inspect

1.2 Location of Work:

1.2.1 Aft Engine Room 3-36-0-E

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 Systems and Specifications, Steel Structures Painting Manual, Volume 2

2.3 631-6737118 Rev M, Ships Painting Schedule

3. REQUIREMENTS:

3.1 Accomplish a power tool cleaning of the propulsion engine air intake surfaces, located in compartment listed in 1.2, removing corrosion, debris, dirt. Accomplish the requirements of Surface Preparation Specification SSPC-SP-3 of 2.2.

3.2 Accomplish a visual inspection of surfaces of air intake for structural discrepancies, cracks, damage or deformation.

3.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.2 to the SUPERVISOR, noting exact locations and sizes of discrepancies and recommendations for repairs.

3.3 Apply one coat of formula 150, conforming to Mil-P-24441, to prime coat bare metal surfaces of air intakes cleaned in 3.1.

3.3.1 Apply one coat of flat black, overall surfaces of air intake trunks in accordance with Line 11, Page 5 - 13 of 2.3.

SHIP: USS HURRICANE (PC-3)

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.



SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>251-44-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EM01-Z518</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>PFANTZ</u>

1. SCOPE:

1.1 Title: Port Engine Room Air Intake; clean and inspect

1.2 Location of Work:

1.2.1 Forward Engine Room 3-29-0-E

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 Systems and Specifications, Steel Structures Painting Manual, Volume 2

2.3 631-6737118 Rev M, Ships Painting Schedule

3. REQUIREMENTS:

3.1 Accomplish a power tool cleaning of the propulsion engine air intake surfaces, located in compartment listed in 1.2, removing corrosion, debris, dirt. Accomplish the requirements of Surface Preparation Specification SSPC-SP-3 of 2.2.

3.2 Accomplish a visual inspection of surfaces of air intake for structural discrepancies, cracks, damage or deformation.

3.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.2 to the SUPERVISOR, noting exact locations and sizes of discrepancies and recommendations for repairs.

3.3 Apply one coat of formula 150, conforming to Mil-P-24441, to prime coat bare metal surfaces of air intakes cleaned in 3.1.

3.3.1 Apply one coat of flat black, overall surfaces of air intake trunks in accordance with Line 11, Page 5 - 13 of 2.3.

SHIP: USS HURRICANE (PC-3)

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 259-11-001  
COAR: 16-003 PCN: EM01-Z520  
EM01-Z523  
EM01-Z526  
EM01-Z529  
CMP: NONE  
PLANNER: PFANTZ

1. SCOPE:

1.1 Title: Main Propulsion Diesel Engine Exhaust System Flapper Valves; repair

1.2 Location of Work:

1.2.1 Forward Engine Room, (3-29-0-E)

1.2.2 After Engine Room, (3-36-0-E)

1.3 Identification:

1.3.1 Quantity (4): No. 1, 2, 3, and 4 Main Propulsion Diesel Engine Exhaust System Flapper Valves, Size 18"

1.3.2 Quantity (4): No. 1, 2, 3, and 4 Main Propulsion Diesel Engine Exhaust System Flapper Valves, Size 8"

2. REFERENCES:

2.1 Standard Items

2.2 259-6736974 Rev F, Main Engine Exhaust Piping System

2.3 259-6736988 Rev E, Flapper Valve Assembly

3. REQUIREMENTS:

3.1 Remove lagging and insulation pads from the main propulsion diesel engine exhaust system flapper valves listed in 1.3.1 and 1.3.2.

3.2 Matchmark flapper valve parts.

3.3 Disconnect electrically and mechanically the flapper valves listed in 1.3.1 and 1.3.2 and remove to work area.

3.4 Disassemble, clean internal and external surfaces free of foreign matter (including paint), inspect parts for defects and repair flapper valves in

SHIP: USS HURRICANE (PC-3)

accordance with 2.2, 2.3, and as follows:

3.4.1 Chase and tap exposed threaded areas.

3.4.2 Machine, grind, or lap and spot-in disc to seat to obtain 360-degree continuous contact.

(I) "CONTACT"

3.4.2.1 Verify contact using blueing method.

3.4.3 Dress and true gasket mating surfaces.

3.5 Assemble flapper valves installing new gaskets, bushings, disc retaining nuts, pins, washers, capscrews and fasteners in accordance with 2.2., 2.3., and manufacturer's specifications.

3.6 Restore exposed mating surfaces. Repair by removing high spots, burrs, abrasions and foreign matter, where removal can be accomplished by hand tools.

3.7 Install the repaired flapper valves in their parent location aboard ship and connect electrically and mechanically.

3.7.1 Install new gaskets and fasteners in accordance with 2.2. and 2.3.

3.7.2 The length of externally threaded fasteners shall be such that a minimum of two threads to a maximum of five threads shall protrude beyond the crown of the tightened nut.

3.7.3 Gasket and fastener replacement shall be limited to the mechanical joints removed or disturbed for the accomplishment of this work item.

(I) (V) "AIR TEST"

3.8 Accomplish an air test on the repaired exhaust system flapper valves, using clean, dry air at 5 PSIG for a minimum of fifteen minutes. Allowable leakage: None.

(V) (G) "OPERATIONAL TEST"

3.9 Accomplish an operational test of the repaired flapper valves, both electrically and mechanically under normal system operating conditions.

3.9.1 Cycle each valve from full closed to full open to full closed four times. Allowable external leakage: None.

3.9.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.9 to the SUPERVISOR.

3.10 Install new insulation and lagging pads, on new and disturbed sections

SHIP: USS HURRICANE (PC-3)

of main engine exhaust system piping.

3.11 Accomplish the requirements of 009-32 of 2.1 for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

ITEM NO: 261-85-001

PCN: EXTY-0045

CMP : NONE

PLANNER: PFANTZ  
SULLIVAN

1. SCOPE :

1.1 Title: PC1 Class AER-0045E, Fuel System Knife Edge Strainer Replacement;  
accomplish

## 1.2 Location of Work:

1.2.1 Fwd Engine Room (3-29-0-E)

1.2.2 Aft Engine Room (3-36-0-E)

### 1.3 Identification:

1.3.1 Quantity (3) Conversion Kit, Knife Edge Strainer, Stainless Steel, Mfr. by Cuno Inc., P/N 12894-02-40

1.3.2 Quantity (3) Strainer Element, Stainless Steel, Mfr. by Cuno Inc., P/N 12840-04-40-0015

1.3.3 Quantity (3) Gland Kit, Teflon, Mfr. by Cuno Inc., P/N 98801-03

1.3.4 Quantity (3) Head Gasket, Buna N/Cork, Mfr. by Cuno Inc., P/N 22120-31

1.3.5 Quantity (3) Pin Handle, Steel, Mfr. by Cuno Inc., P/N 22183-03

## 2. REFERENCES :

## 2.1 Standard Items

## 2.2 261-6736976 Rev E, Fuel Oil Service Piping Arr & Details

## 2.3 261-7289092 Rev A, Fuel System Knife Edge Strainer Replacement

## 2.4 PC1 CLASS AER-0045E, Fuel System Knife Edge Strainer Replacement

### 3. REQUIREMENTS :

3.1 Open and clean the piping section from V-1 (F.O. Tank CO Valve) through F-38 (F.O. Strainer) to V-8 (F.O. Check Valve) to a gas free condition for the Qty (3) knife edge strainers undergoing internal replacement, in accordance with

SHIP: USS HURRICANE (PC-3)

2.2 and 2.3.

3.2 Accomplish removals, modifications and installations incidental to PC1 Class AER-0045E, Fuel System Knife Edge Strainer Replacement in accordance with 2.3 and 2.4.

3.2.1 Restore disturbed sections to system operational status.

(V) (G) "OPERATIONAL TEST"

3.3 Accomplish an operational test of the newly modified and disturbed knife edge strainers and associated fuel oil service piping under system operating pressure.

3.3.1 Allowable leakage at new and disturbed joints: None.

3.4 Accomplish the requirements of 009-32 of 2.1, for preparation and preservation of new and disturbed surfaces.

3.4.1 Install new flange shielding for new and disturbed joints.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

ITEM NO: 304-85-001

PCN: EXTY-0023

CMP : NONE

PLANNER: BENVIE  
SULLIVAN

1. SCOPE :

1.1 Title: PC1 Class AER-0023E, Rev 01, Portable Shore Power Box Upgrade;  
accomplish

## 1.2 Location of Work:

### 1.2.1 Main Deck, Frame 35

### 1.3 Identification:

1.3.1 Qty (One) Portable Shore Power Box

1.3.2 Qty (20 ft) Cable, P/N LSTHOF-500

## 2. REFERENCES :

## 2.1 Standard Items

## 2.2 PC1 AER-0023E Rev 01, Portable Shore Power Box Upgrade

### 2.3 671-7290096 Rev A, Shore Power Receptacle Box Mod

2.4 DOD-STD-2003, Electric Plant Installation Methods for Surface Ships and Submarines.

2.5 0967-LP-000-0110, Electronics Installation and Maintenance Book  
Installation Standards

## 2.6 MIL-STD-1310, Shipboard Bonding, Grounding and Other Techniques for Electromagnetic Compatibility and Safety

### 3. REQUIREMENTS:

3.1 Remove existing LSTHOF-150 cable going to the bottom Connector of the Portable Shore Power Receptacle Box and replace with cable identified in 1.3.2 in accordance with 2.2 and 2.3.

3.1.1 Remove existing Stuffing Tube and replace with new Stuffing tube  
(Pc 231 of 2.3).



SHIP: USS HURRICANE (PC-3)

3.1.2 Remove existing connector and install new connector (Pc 232 of 2.3) in accordance with Figure 2E15 of 2.4.

3.2 Accomplish the requirements of 009-22 of 2.1, for the cable terminating in the equipment listed in 1.3.1.

3.2.1 Weatherproof and seal connectors exposed to the weather in accordance with paragraph 2-20.s of 2.5

3.3 Bond and ground equipment in accordance with 2.6. Grounding straps shall be CRES 316L for topside equipment.

3.3.1 Acceptable criteria for equipment to hull ground via bond or ground strap is one-tenth ohm maximum.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 311-21-001  
COAR: 16-003 PCN: EM01-Z540  
CMP: NONE  
PLANNER: PFANTZ  
MCCUNE

1. SCOPE:

1.1 Title: Ship's Service Diesel Generator Engine; remove repair and test

1.2 Location of Work: Forward Engine Room (3-29-0-E)

1.3 Identification:

1.3.1 Quantity (One): No. One Ship Service Diesel Generator Engine,  
Mfr. Caterpillar Tractor Co., Model 3306B DITA, 155 BHP, 6  
Cylinder, 4 Cycle, 4.75 Inch Bore, 6 Inch Stroke, 1800 RPM, CCW  
Rotation, APL 664810154L

2. REFERENCES:

2.1 Standard Items

2.2 S9311-C1-MMA-010, Technical Manual for Diesel Generator Set Model  
3306 DITB

2.3 T9074-AS-GIB-010/271, Requirements for Nondestructive Testing Methods

2.4 MIL-STD-2035, Nondestructive Testing Acceptance Criteria

2.5 S9086-HB-STM-010/CH-233R1, Naval Ship's Technical Manual Chapter 233  
Diesel Engines

2.6 262-6686831, Lube Oil Cooler Cleaning Procedure

2.7 S6430-AE-TED-010, Volume I, Technical Directive for Piping Devices,  
Flexible Hose Assemblies

2.8 3C310C400 Rev E, Ship Service Diesel Generators (SSDG'S) #1 & #2  
Tests

2.9 0530-LP-484-0020, NAVSHIP PUB. 484 Packaging Procedures

2.10 131-6736920 Rev L, Deck Construction Plan

3. REQUIREMENTS:

SHIP: USS HURRICANE (PC-3)

3.1 Provide the services of a qualified Caterpillar Corporation manufacturer's technical representative to provide on-site technical assistance, parts, special tools and guidance for disassembly, inspection, repairs, assembly, testing and adjustments of the equipment listed in 1.3.1.

3.1.1 Crate and secure unit listed in 1.3.1. Packaging shall conform to 2.9.

3.2 Remove and dispose of fluids to accomplish the requirements of this work item.

(I) (G) "CRANKSHAFT DEFLECTION"

3.3 Measure and record the crankshaft deflections crankshaft thrust clearances of the equipment listed in 1.3.1 in accordance with 2.2.

(I) (G) "HYDROSTATIC TEST"

3.3.1 Accomplish a hydrostatic test of the jacket water cooling system including engine block and heat exchanger, using existing system fluid and clean fresh water to a test pressure of 35 PSIG for minimum of 30 minutes, using 2.2. for guidance, prior to any disassembly.

3.3.1.1 Allowable leakage none.

3.3.1.2 Remove and dispose of system fluids after completion of test.

3.3.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.3 and 3.3.1 to the SUPERVISOR.

(I) (G) "VERIFY CERTIFICATION"

3.4 Remove, recondition, calibrate set adjust and test the following equipment and provide certification the each unit meets the manufacture's calibration and performance standards, in accordance with 2.2.

3.4.1 Governor

3.4.2 Lube Oil Pump

3.4.3 Salt Water Pump

3.4.4 Fuel injector pump

3.4.4.1 Install new plunger and barrels.

3.4.5 Fresh Water Pump

3.5 Mark, disconnect, remove and disassemble Ship Service Diesel Generator Engine, accessories, components and subassemblies in accordance with Section 2 of

SHIP: USS HURRICANE (PC-3)

2.2.

3.5.1 Clean each part free of oil and foreign matter leaving no residue or injurious effects.

3.5.2 Inspect each part for wear and defects, using 2.2. as guidance for accept or reject criteria.

3.5.3 Measure and record sizes and clearances, in accordance with 2.2.

3.5.3.1 Include sizes and clearances for each wearing part, bearing surface, thrust and journal bearing, seal and packing area and physical condition of parts not specified for renewal.

3.5.3.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.5.2 through 3.5.3.1 to the SUPERVISOR.

3.5.4 Accomplish liquid penetrant or fluorescent magnetic particle tests on the following in accordance with 2.3. The accept or reject criteria shall be in accordance with Class 2 of 2.4.

3.5.4.1 Cylinder Block

3.5.4.2 Exhaust Manifold

3.5.4.3 Camshaft

3.5.4.4 Crankshaft

3.5.4.5 Piston Pin, Piston and Connecting Rod assemblies

3.5.4.6 Cylinder Head

3.5.4.7 Jacket Water Pump Casing

3.5.4.8 Sea (Raw) Water Pump Casing

3.5.4.9 Cylinder Head

3.5.5 Inspect each cylinder block surface in way of water inlet elbows for erosion.

3.5.5.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.5.4 and 3.5.5 to the SUPERVISOR.

3.6 Remove and disassemble turbocharger in accordance with 2.2 paragraph 6-24.1 and 6-24.2.

SHIP: USS HURRICANE (PC-3)

3.6.1 Clean each part and oil passages in the turbocharger cartridge housing free of oil and foreign matter leaving no residue or injurious effects.

3.6.2 Inspect each part for wear and defects, using 2.2 as guidance for accept or reject criteria.

3.6.3 Measure and record sizes and clearances, using 2.2 for guidance.

3.6.3.1 Include sizes and clearances for each wearing part, bearing surface, seal area and physical condition of parts not specified for renewal.

3.6.3.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.6.2 through to the SUPERVISOR.

3.7 Remove and disassembly the starter motor in accordance with 2.2, paragraph 6-21.

3.7.1 Clean each part free of foreign matter leaving no residue or injurious effects.

3.7.2 Inspect each part for wear and defects, using 2.2 as guidance for accept or reject criteria.

3.7.3 Measure and record sizes and clearances in accordance with 2.2 and manufactures specifications.

3.7.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.7.2 and 3.7.3 to the SUPERVISOR.

3.8 Repair the Ship Service Diesel Generator Engine accessory, component and subassembly, using 2.2 for guidance.

3.8.1 Hone each cylinder block bore to remove glazing, scoring and ridging, to receive new liners in accordance with 2.2.

3.8.2 Machine skim cut and handwork each machined, sealing, aligning, mating and gasket surface, taking precaution to ensure no excessive material is removed causing loss of critical size and alignment.

3.8.3 Chase and tap exposed threaded areas.

3.8.4 Restore mating surfaces exposed by disassemble and removal. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

3.8.5 Stone each seal, o-ring, packing, bushing, gear and bearing

SHIP: USS HURRICANE (PC-3)

journal to remove high spots.

3.8.6 Repair, set, adjust and bench test Qty (6) fuel injectors and provide certification that each unit meets the manufacturer's calibration and performance standards in accordance with 2.2, Paragraph 6-32.

3.8.7 Straighten each shaft, push rod and valve stem to within 0.002 inch total indicator reading.

3.8.8 Repair and test the after cooler using 2.2 and technical representative's guidance.

3.8.9 Accomplish repairs to each relief and regulating valve, using 2.2 for guidance.

3.8.9.1 The test medium is water.

3.8.9.2 The seat tightness test pressure is in accordance with 2.2.

3.8.9.3 The lifting pressure is in accordance with 2.2.

3.8.10 Accomplish balancing of each rotating assembly.

3.9 Repair the turbocharger, using 2.2 for guidance.

3.9.1 Stone each seal, o-ring, packing and bearing journal to remove high spots.

3.9.2 Chase and tap exposed threaded areas.

3.9.3 Ensure the turbocharger shaft is straight, in accordance with 2.2.

3.9.4 Restore mating surfaces exposed by disassembly and removal. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

3.10 Repair the starter motor, using 2.2 paragraph 6-21 and manufacture specifications.

3.11 Accomplish cleaning and flushing the lube oil system for the equipment listed in 1.3, in accordance with 2.5, using 2.2 for guidance.

(I) (G) "VERIFY CLEANLINESS"

3.11.1 Accomplish the requirements of 2.6 for cleaning the tube side and shell side of the lube oil cooler.

(I) (G) "HYDROSTATIC TEST"

SHIP: USS HURRICANE (PC-3)

3.11.1.1 Hydrostatically test the tube side (coolant side) and shell side (oil side) of the lube oil cooler with clean fresh water and inspect for leaks. Hold the test pressure for 10 minutes. Allowable leakage: None (test Pressure shall be provided by the technical representative).

3.12 Assemble, install, align, connect, lubricate, adjust and time Ship Service Diesel Generator Engine, including components, accessories, assemblies and subassemblies in accordance with 2.2.

3.12.1 Fit and install new gaskets, seals, o-rings, packing, studs, bolts, screws, nuts, washers, lockwashers, pins, clamps, keys, cotter pins, not being replaced elsewhere in this item but found to be missing, defective or unserviceable in accordance with 2.2.

3.12.2 Remove existing, fit, and install new the following parts:

TOTAL QTY	NAME OF	PART	PIECE	FIGURE	REF
REQ	PART	NO.	NO.	NO.	NO.
ONE	SEAL	7L2031	7-2-6	7-2	2.2
ONE	SEAL	7L7460	7-2-8	7-2	2.2
ONE	PLUG	5M6214	7-2-9	7-2	2.2
ONE	SCREEN	5L7874	7-2-14	7-2	2.2
ONE	ELEMENT	4L9852	7-2-17	7-2	2.2
ONE	NUT	1B5355	7-2-21	7-2	2.2
ONE	BOLT	S5171	7-2-22	7-2	2.2
4	SEAL	4L8337	7-2-26	7-2	2.2
ONE	GASKET	619691	7-2-32	7-2	2.2
ONE	PLUG	5M6214	7-2-33	7-2	2.2

3.12.3 Remove existing, fit and install new the following parts:

TOTAL QTY	NAME OF	PART	PIECE	FIGURE	REF
REQ	PART	NO.	NO.	NO.	NO.
6	SEAL	1S4947	7-3-25	7-3	2.2
6	SEAL	6M5062	7-3-27	7-3	2.2
6	SEAL	9L9098	7-3-29	7-3	2.2

3.12.4 Remove existing, fit, and install new the following parts:

TOTAL QTY	NAME OF	PART	PIECE	FIGURE	REF
REQ	PART	NO.	NO.	NO.	NO.
ONE	ADAPTER, FLEX	3N3017	7-4-1	7-4	2.2
ONE	GASKET	5H8331	7-4-5	7-4	2.2
ONE	GASKET	4N3955	7-4-9	7-4	2.2

SHIP: USS HURRICANE (PC-3)

3.12.5 Remove existing, fit, and install new the following parts:

TOTAL NO.	NAME OF	PART	PIECE	FIGURE	REF
REQ	PART	NO.	NO.	NO.	NO.
ONE	SEAL	7M8485	7-6-3	7-6	2.2
3	GASKET,MANIFOLD	8S6410	7-6-9	7-6	2.2

3.12.6 Remove existing, fit and install new the following parts:

TOTAL QTY	NAME OF	PART	PIECE	FIGURE	REF
REQ	PART	NO.	NO.	NO.	NO.
2	SEAL	6L1648	7-7-4	7-7	2.2
2	GASKET	9L5908	7-7-10	7-7	2.2
2	GASKET	5S6735	7-7-14	7-7	2.2
2	SEAL	5M5860	7-7-20	7-7	2.2
4	CLAMP	5P0597	7-7-22	7-7	2.2
ONE	HOSE	SP1255	7-7-23	7-7	2.2
ONE	GASKET	2A3541	7-7-25	7-7	2.2
ONE	HOSE (2.75 INCH)	5P1257	7-7-26	7-7	2.2

3.12.7 Remove existing, fit and install new the following parts:

TOTAL QTY	NAME OF	PART	PIECE	FIGURE	REF
REQ	PART	NO.	NO.	NO.	NO.
ONE	SEAL	4L9021	7-8-6	7-8	2.2
ONE	RING	4M5285	7-8-11	7-8	2.2
ONE	GASKET	2P0220	7-8-13	7-8	2.2
ONE	BEARING	7L7508	7-8-14	7-8	2.2
ONE	SEAL ASSEMBLY	7L2130	7-8-17	7-8	2.2
ONE	WEAR PLATE	4L8473	7-8-18	7-8	2.2
ONE	SEAL, O-RING	2L7985	7-8-21	7-8	2.2
ONE	GASKET	1L4785	7-8-23	7-8	2.2
ONE	HOSE, (3.5 INCH)	5P1258	7-8-25	7-8	2.2
ONE	ZINC	5I7685	7-8-27	7-8	2.2
ONE	PIPE PLUG	6L2279	7-8-28	7-8	2.2
ONE	HOSE, 3 INCH)	5P1256	7-8-30	7-8	2.2
2	GASKET	2N5291	7-8-32	7-8	2.2
ONE	BUSHING	3B7764	7-8-43	7-8	2.2

3.12.8 Remove existing, fit and install new the following parts:

TOTAL QTY	NAME OF	PART	PIECE	FIGURE	REF
REQ	PART	NO.	NO.	NO.	NO.



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ONE	GASKET, ELBOW	2P6132	7-9-2	7-9	2.2
ONE	GASKET	4N3841	7-9-9	7-9	2.2
ONE	GASKET	2N4561	7-9-12	7-9	2.2
ONE	HOSE, (2.3 INCH LG)	5P1260	7-9-15	7-9	2.2
ONE	GASKET	7N200	7-9-18	7-9	2.2
ONE	GASKET	6L6580	7-9-25	7-9	2.2
ONE	SEAL	9M4849	7-9-26	7-9	2.2

3.12.9 Remove existing, fit and install new the following parts:

TOTAL QTY	NAME OF	PART	PIECE	FIGURE	REF
REQ	PART	NO.	NO.	NO.	NO.
ONE	GASKET	8N5928	7-10-1	7-10	2.2
ONE	SEAL, WATER	4W3864	7-10-2	7-10	2.2
ONE	RING	1K6985	7-10-3	7-10	2.2
2	BEARING	6H3957	7-10-5	7-10	2.2
ONE	SEAL, OIL	8T5919	7-10-7	7-10	2.2

3.12.10 Grind and spot in the new valves to seats in accordance with 2.2.

(I) (G) "HYDROSTATIC TEST"

3.12.11 Accomplish the requirements of Section 8 of 2.7 prior to installation of each new flexible hose assembly.

3.12.11.1 Install new CRES identification tag on each flexible hose assembly listed in 3.12.2, engraved in accordance with paragraph 8.5 of 2.7.

3.12.12 Measure and record final sizes and clearances in accordance with 2.2.

3.12.12.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.12.5 to the SUPERVISOR.

3.12.13 Provide 8 mandays of labor and 1500 dollars of material for the procurement of new parts in place of those found to be missing or defective excluding parts specifically identified to be replaced. Do not exceed the dollar amount without prior approval of the SUPERVISOR. Total cost greater or less than above manday and dollar amounts will be the subject of an equitable adjustment.

3.12.13.1 Submit one legible copy, in hard copy or electronic media, of a weekly report to document labor and material expenditures to the SUPERVISOR.

SHIP: USS HURRICANE (PC-3)

(I) (G) "VERIFY CLEANLINESS"

3.12.14 Verify cleanliness of Ship Service Diesel Generator Engine interior prior to final closure.

3.13 Assemble, install, align and adjust the turbocharger in accordance with 2.2. paragraph 6-24.3 and 6-24.4

3.13.1 Fit and install new plugs, clamps, fasteners, clips not being replaced elsewhere in this item but found to be defective or unserviceable in accordance with 2.2.

3.13.2 Remove existing, fit, and install new the following parts:

TOTAL QTY	NAME OF	PIECE	REF	FIG	PART
REQ	PART	NO.	NO.	NO.	NO.
One Each	Kit, Cartridge		2.2	7-5	2W0715
One Each	Gasket	7-5-4	2.2	7-5	7M7273
One Each	Ring, Seal	7-5-24	2.2	7-5	8M5253
One Each	Seal	7-5-42	2.2	7-5	8M5248
One Each	Seal	7-5-44	2.2	7-5	3J7354
2 Each	Seal	7-5-46	2.2	7-5	3K0360
One Each	Seal	7-5-51	2.2	7-5	9M4849
One Each	Gasket	7-5-53	2.2	7-5	1S4810
One Each	Gasket	7-5-54	2.2	7-5	1S6595

3.13.3 Restore mating surfaces exposed by disassemble and removal. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

3.13.4 Measure and record final sizes and clearances in accordance with 2.2.

3.13.4.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.13.4 to the SUPERVISOR.

3.14 Assemble, install, align and adjust the starter motor in accordance with 2.2 and manufactures specifications.

3.14.1 Remove existing, fit, and install new the following parts:

TOTAL QTY	NAME OF PART	PIECE	REF	FIG DWG	PART NO.
REQ		NO.	NO.	NO.	
One Each	Connector	7-1-3	2.2	7-1	7T3271
One Each	Boot	7-1-9	2.2	7-1	7T3269

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One Each	Wire	7-1-162	2.2	7-1	7T3422
One Each	Kit, Bushing		2.2	7-1	7T3267
One Each	Kit, Lever		2.2	7-1	7T3268
One Each	Kit, Insulator		2.2	7-1	8T9884

3.14.2 Restore mating surfaces exposed by disassembly and removal. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

3.14.3 Measure and record final sizes and clearances, using 2.2 and manufactures specifications for guidance.

3.14.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.14.3 to the SUPERVISOR.

3.15 Accomplish the requirements of 009-14 of 2.1, for each gage and thermometer.

3.15.1 Submit one legible copy, in hard copy or electronic media, of a list of new parts installed in place of those found to be missing or defective with documenting invoices or other substantiating data to the SUPERVISOR. Total cost of new parts excluding parts specifically identified to be replaced shall not exceed 100 dollars without prior approval of the SUPERVISOR. Total cost greater or less than above dollar amount will be the subject of an equitable adjustment.

3.16 The length of externally threaded fasteners shall be such that a minimum of two threads to a maximum of five threads shall protrude beyond the crown of the tightened nut.

3.17 Accomplish the requirements 009-32 of 2.1, for surface preparation of ship's service diesel generator engine.

3.17.1 Accomplish preservation of ship's service diesel generator engine surfaces, using "Caterpillar White Paint" for prepared surfaces.

(I) (G) "FLUSH"

3.18 Flush engine water system, using 2.2 and 2.5 for guidance.

3.18.1 Fill the cooling water system with 50/50 mixture of distilled fresh water and anti-freeze (CATCOOL), approximately 11 gallons.

3.18.2 Heat mixture to 150 degrees Fahrenheit.

3.18.3 Circulate the mixture at 150 degrees Fahrenheit through system for a minimum of 30 minutes.

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3.18.4 Remove flushing mixture and flush system with clean fresh water until clear.

3.18.4.1 Upon completion of flush, drain engine cooling water system.

3.18.5 Fill cooling water system to the full mark with 50/50/ mixture of distilled fresh water and anti-freeze (CATCOOL), approximately 11 gallons.

(V) (G) "OPERATIONAL TEST"

3.19 Accomplish the prerequisite and operational test of the ships service diesel generator engine in accordance with 2.2 and manufacturer's test procedure.

3.19.1 Fill the ship service diesel generator engine lube oil system to the full mark with new oil approximately 7.3 gallons conforming to manufactures specifications.

3.19.2 Record test results on Test Data Sheets. .REREPORT: Prerequisite and Operational Test DATE:

3.19.2.1 Submit one legible copy, in hard copy or electronic media, of completed Test Data Sheets to the SUPERVISOR.

3.20 Reinstallation of removed portable access panels used to permit removal of Ship's Service Diesel Generator and Engine shall be installed using new gaskets conforming to ZZ-R-765 and new seals, grommets (nylon washers), bolts, washers and nuts in accordance with 2.2.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 311-21-002  
COAR: 16-003 PCN: EM01-Z542  
EM01-Z543  
CMP: NONE  
PLANNER: BENVIE  
SULLIVAN

1. SCOPE:

1.1 Title: Ship's Service Diesel Generator; remove, clean and test

1.2 Location of Work:

1.2.1 Fwd Engine Room (3-29-0-E)

1.3 Identification:

1.3.1 Quantity (One): No. One Generator, 150 KW, 480 VAC, Freq 60 HZ  
Rated Amps 233, Frame 446, Exciter Volts NL/FL 6.8/24 Mfr.:  
Caterpillar Inc., Mfr. Part No. 5N63(60HZ)

1.3.2 Qty (One) Voltage Regulator Caterpillar P/N 9Y8400

2. REFERENCES:

2.1 Standard Items

2.2 S9311-C1-MMA-010, Technical Manual For Diesel Generator Set Model  
3306 DITB

2.3 S9086-KC-STM-010/CH-300 R4, Naval Ship's Technical Manual Electric  
Plant

2.4 302-6687009 Rev A, Electrical Rotating Machinery Water Solution  
Cleaning and Drying Process

2.5 SE000-00-EIM-160, Electronics Installation and Maintenance Book,  
General Maintenance, Section 3-2.1

2.6 3C310C400 Rev E, Ship Service Diesel Generators (SSDGs) #1 Tests

3. REQUIREMENTS:

3.1 Prior to cleaning, accomplish an operational test of SSDG #1 in  
accordance with 2.2.

SHIP: USS HURRICANE (PC-3)

3.1.1 Submit one legible copy, in hard copy or electronic media, of completed test results to the SUPERVISOR.

3.2 Remove and dispose of fluids to accomplish the requirements of this work item.

3.3 Accomplish the following to the equipment listed in 1.3 in accordance with 2.2.

3.3.1 Prior to disconnecting the equipment:

3.3.1.1 Record electrical hook-up data and thrust readings. Record air gap readings and bearing clearances for sleeve bearing equipment only.

3.3.1.2 Inspect coupling for cracks, broken segments, wear and misalignment in excess of the tolerances specified in 2.2.

3.3.1.3 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.3.1.1 and 3.3.1.2 to the SUPERVISOR.

3.4 Disconnect electrically and mechanically and disassemble, to the extent necessary, to clean the equipment listed in 1.3.1. Record electrical hook-up data, in accordance with 2.2 and the following:

3.4.1 Accomplish a 500 volt megger insulation resistance and continuity test of the windings and record readings.

3.4.1.1 Disconnect solid-state devices prior to measuring insulation resistance of windings.

3.4.1.2 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.4 and 3.4.1 to the SUPERVISOR.

3.5 Disconnect electrically and mechanically and remove equipment listed in 1.3.2. Record electrical hook-up data using 2.2 and 2.3 for guidance.

3.6 Accomplish the requirements of 009-16 of 2.1, for the equipment listed in 1.3.2 in accordance with 2.2 and 2.3 and the following:

3.6.1 Submit one legible copy, in hard copy or electronic media of a report listing new parts installed in place of those found to be missing or defective, with documenting invoices or other substantiating data to the SUPERVISOR. Total cost of new parts excluding parts specifically identified to be replaced, shall not exceed 200 dollars without prior approval of the SUPERVISOR. Total cost of new parts not specifically identified to be replaced, greater or less than above dollar amount, will be the subject of an equitable adjustment.

SHIP: USS HURRICANE (PC-3)

3.6.2 Cleaning of the equipment shall be in accordance with 2.5.

3.7 Remove the equipment listed in 1.3.1 to the shop.

3.7.1 Accomplish cleaning of each rotor and stator in accordance with Paragraph 300-4.5.5 of 2.3 and 2.4. Ensure connections and jumpers are thoroughly cleaned.

3.7.1.1 Remove the rotor completely free of the stator prior to cleaning.

3.7.1.2 Protect static excitor from moisture.

3.7.2 Dry each cleaned rotor and stator in accordance with Paragraph 300-5.3 of 2.3, ensuring process is continuously monitored. Record cleaning and drying process in accordance with 2.4. Maintain winding temperature at 220 degrees Fahrenheit while drying. Continue drying until the insulation resistance readings show no abrupt changes and do not increase more than 5 percent over a 12 hour period. The final value of insulation resistance for the rotor and stator windings at the completion of drying shall not be less than 100 megohms at 220 degrees Fahrenheit. The insulation resistance shall be taken using a 500 volt DC megger.

3.7.2.1 Submit one legible copy, in hard copy or electronic media, of completed 2.4 to the SUPERVISOR.

3.8 Repair lightly scored areas of frame, end bells and shaft by manual methods. Recondition threads and fit key to keyway.

3.8.1 Ensure the bearing journals and oil passages are clean and the drain and supply lines are unclogged and free of obstructions.

3.9 Reinstall equipment removed in 3.5.

3.9.1 Assemble the equipment listed in 1.3.1 in accordance with recorded hook-up data and 2.2.

3.9.2 Inspect shaft for freedom of rotation. Turn by hand at least three turns.

3.9.3 Align engine to the generator in accordance with 2.2.

3.9.4 Measure and record the air gap and bearing clearances (sleeve bearing equipment only), insulation resistance (at 500 volts DC) and thrust.

3.9.4.1 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.9.2, 3.9.3 and 3.9.4 to the SUPERVISOR.

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(V) (G) "OPERATIONAL, LOAD AND PARALLEL TEST"

3.10 Accomplish the prerequisite and operational test of the ship's service generator set in accordance with 2.2 and 2.6.

3.10.1 Record test results on Test Data Sheets of 2.6.

3.10.1.1 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of completed Test Data Sheets to the SUPERVISOR.

3.11 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces of each gasket contact area.

4. NOTES:

4.1 Known source for Ship's Service Diesel Generator Cleaning: Pacific Defense Systems (PDS) POC: Roy LeBleu 1428 McKinley Ave. National City, CA 91950-4217 Phone: (619) 474-8122 Fax: (619) 477-3669 Cell: (619) 954-8111 Email: rlebleu@pacdef.com

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.



SHIP: USS HURRICANE (PC-3) ITEM NO: 311-22-001  
COAR: 16-003 PCN: EM02-Z550  
CMP: NONE  
PLANNER: PFANTZ  
MCCUNE

1. SCOPE:

1.1 Title: Ship's Service Diesel Generator Engine; remove repair and test

1.2 Location of Work: Forward Engine Room (3-29-0-E)

1.2.1 Aft Engine Room (3-36-0-E)

1.3 Identification:

1.3.1 Quantity (One): No. 2 Ship Service Diesel Generator Engine,  
Mfr. Caterpillar Tractor Co., Model 3306B DITA, 155 BHP, 6  
Cylinder, 4 Cycle, 4.75 Inch Bore, 6 Inch Stroke, 1800 RPM, CCW  
Rotation, APL 664810154L

2. REFERENCES:

2.1 Standard Items

2.2 S9311-C1-MMA-010, Technical Manual for Diesel Generator Set Model  
3306 DITB

2.3 T9074-AS-GIB-010/271, Requirements for Nondestructive Testing Methods

2.4 MIL-STD-2035, Nondestructive Testing Acceptance Criteria

2.5 S9086-HB-STM-010/CH-233R1, Naval Ship's Technical Manual Chapter 233  
Diesel Engines

2.6 262-6686831, Lube Oil Cooler Cleaning Procedure

2.7 S6430-AE-TED-010, Volume I, Technical Directive for Piping Devices,  
Flexible Hose Assemblies

2.8 3C310C400 Rev E, Ship Service Diesel Generators (SSDG'S) #1 & #2  
Tests

2.9 0530-LP-484-0020, NAVSHIP PUB. 484 Packaging Procedures

2.10 131-6736920 Rev L, Deck Construction Plan

SHIP: USS HURRICANE (PC-3)

3. REQUIREMENTS:

3.1 Provide the services of a qualified Caterpillar Corporation manufacturer's technical representative to provide on-site technical assistance, parts, special tools and guidance for disassembly, inspection, repairs, assembly, testing and adjustments of the equipment listed in 1.3.1.

3.1.1 Crate and secure unit listed in 1.3.1. Packaging shall conform to 2.9.

3.2 Remove and dispose of fluids to accomplish the requirements of this work item.

(I) (G) "CRANKSHAFT DEFLECTION"

3.3 Measure and record the crankshaft deflections crankshaft thrust clearances of the equipment listed in 1.3.1 in accordance with 2.2.

(I) (G) "HYDROSTATIC TEST"

3.3.1 Accomplish a hydrostatic test of the jacket water cooling system including engine block and heat exchanger, using existing system fluid and clean fresh water to a test pressure of 35 PSIG for minimum of 30 minutes, using 2.2. for guidance, prior to any disassembly.

3.3.1.1 Allowable leakage none.

3.3.1.2 Remove and dispose of system fluids after completion of test.

3.3.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.3 and 3.3.1 to the SUPERVISOR.

(I) (G) "VERIFY CERTIFICATION"

3.4 Remove, recondition, calibrate set adjust and test the following equipment and provide certification the each unit meets the manufacture's calibration and performance standards, in accordance with 2.2.

3.4.1 Governor

3.4.2 Lube Oil Pump

3.4.3 Salt Water Pump

3.4.4 Fuel injector pump

3.4.4.1 Install new plunger and barrels.

3.4.5 Fresh Water Pump

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3.5 Mark, disconnect, remove and disassemble Ship Service Diesel Generator Engine, accessories, components and subassemblies in accordance with Section 2 of 2.2.

3.5.1 Clean each part free of oil and foreign matter leaving no residue or injurious effects.

3.5.2 Inspect each part for wear and defects, using 2.2. as guidance for accept or reject criteria.

3.5.3 Measure and record sizes and clearances, in accordance with 2.2.

3.5.3.1 Include sizes and clearances for each wearing part, bearing surface, thrust and journal bearing, seal and packing area and physical condition of parts not specified for renewal.

3.5.3.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.5.2 through 3.5.3.1 to the SUPERVISOR.

3.5.4 Accomplish liquid penetrant or fluorescent magnetic particle tests on the following in accordance with 2.3. The accept or reject criteria shall be in accordance with Class 2 of 2.4.

3.5.4.1 Cylinder Block

3.5.4.2 Exhaust Manifold

3.5.4.3 Camshaft

3.5.4.4 Crankshaft

3.5.4.5 Piston Pin, Piston and Connecting Rod assemblies

3.5.4.6 Cylinder Head

3.5.4.7 Jacket Water Pump Casing

3.5.4.8 Sea (Raw) Water Pump Casing

3.5.4.9 Cylinder Head

3.5.5 Inspect each cylinder block surface in way of water inlet elbows for erosion.

3.5.5.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.5.4 and 3.5.5 to the SUPERVISOR.

3.6 Remove and disassemble turbocharger in accordance with 2.2 paragraph 6-

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24.1 and 6-24.2.

3.6.1 Clean each part and oil passages in the turbocharger cartridge housing free of oil and foreign matter leaving no residue or injurious effects.

3.6.2 Inspect each part for wear and defects, using 2.2 as guidance for accept or reject criteria.

3.6.3 Measure and record sizes and clearances, using 2.2 for guidance.

3.6.3.1 Include sizes and clearances for each wearing part, bearing surface, seal area and physical condition of parts not specified for renewal.

3.6.3.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.6.2 through to the SUPERVISOR.

3.7 Remove and disassembly the starter motor in accordance with 2.2, paragraph 6-21.

3.7.1 Clean each part free of foreign matter leaving no residue or injurious effects.

3.7.2 Inspect each part for wear and defects, using 2.2 as guidance for accept or reject criteria.

3.7.3 Measure and record sizes and clearances in accordance with 2.2 and manufactures specifications.

3.7.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.7.2 and 3.7.3 to the SUPERVISOR.

3.8 Repair the Ship Service Diesel Generator Engine accessory, component and subassembly, using 2.2 for guidance.

3.8.1 Hone each cylinder block bore to remove glazing, scoring and ridging, to receive new liners in accordance with 2.2.

3.8.2 Machine skim cut and handwork each machined, sealing, aligning, mating and gasket surface, taking precaution to ensure no excessive material is removed causing loss of critical size and alignment.

3.8.3 Chase and tap exposed threaded areas.

3.8.4 Restore mating surfaces exposed by disassemble and removal. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

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3.8.5 Stone each seal, o-ring, packing, bushing, gear and bearing journal to remove high spots.

3.8.6 Repair, set, adjust and bench test Qty (6) fuel injectors and provide certification that each unit meets the manufacturer's calibration and performance standards in accordance with 2.2, Paragraph 6-32.

3.8.7 Straighten each shaft, push rod and valve stem to within 0.002 inch total indicator reading.

3.8.8 Repair and test the after cooler using 2.2 and technical representative's guidance.

3.8.9 Accomplish repairs to each relief and regulating valve, using 2.2 for guidance.

3.8.9.1 The test medium is water.

3.8.9.2 The seat tightness test pressure is in accordance with 2.2.

3.8.9.3 The lifting pressure is in accordance with 2.2.

3.8.10 Accomplish balancing of each rotating assembly.

3.9 Repair the turbocharger, using 2.2 for guidance.

3.9.1 Stone each seal, o-ring, packing and bearing journal to remove high spots.

3.9.2 Chase and tap exposed threaded areas.

3.9.3 Ensure the turbocharger shaft is straight, in accordance with 2.2.

3.9.4 Restore mating surfaces exposed by disassembly and removal. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

3.10 Repair the starter motor, using 2.2 paragraph 6-21 and manufacture specifications.

3.11 Accomplish cleaning and flushing the lube oil system for the equipment listed in 1.3, in accordance with 2.5, using 2.2 for guidance.

(I) (G) "VERIFY CLEANLINESS"

3.11.1 Accomplish the requirements of 2.6 for cleaning the tube side and shell side of the lube oil cooler.

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(I) (G) "HYDROSTATIC TEST"

3.11.1.1 Hydrostatically test the tube side (coolant side) and shell side (oil side) of the lube oil cooler with clean fresh water and inspect for leaks. Hold the test pressure for 10 minutes. Allowable leakage: None (test Pressure shall be provided by the technical representative).

3.12 Assemble, install, align, connect, lubricate, adjust and time Ship Service Diesel Generator Engine, including components, accessories, assemblies and subassemblies in accordance with 2.2.

3.12.1 Fit and install new gaskets, seals, o-rings, packing, studs, bolts, screws, nuts, washers, lockwashers, pins, clamps, keys, cotter pins, not being replaced elsewhere in this item but found to be missing, defective or unserviceable in accordance with 2.2.

3.12.2 Remove existing, fit, and install new the following parts:

TOTAL QTY	NAME OF	PART	PIECE	FIGURE	REF
REQ	PART	NO.	NO.	NO.	NO.
ONE	SEAL	7L2031	7-2-6	7-2	2.2
ONE	SEAL	7L7460	7-2-8	7-2	2.2
ONE	PLUG	5M6214	7-2-9	7-2	2.2
ONE	SCREEN	5L7874	7-2-14	7-2	2.2
ONE	ELEMENT	4L9852	7-2-17	7-2	2.2
ONE	NUT	1B5355	7-2-21	7-2	2.2
ONE	BOLT	S5171	7-2-22	7-2	2.2
4	SEAL	4L8337	7-2-26	7-2	2.2
ONE	GASKET	619691	7-2-32	7-2	2.2
ONE	PLUG	5M6214	7-2-33	7-2	2.2

3.12.3 Remove existing, fit and install new the following parts:

TOTAL QTY	NAME OF	PART	PIECE	FIGURE	REF
REQ	PART	NO.	NO.	NO.	NO.
6	SEAL	1S4947	7-3-25	7-3	2.2
6	SEAL	6M5062	7-3-27	7-3	2.2
6	SEAL	9L9098	7-3-29	7-3	2.2

3.12.4 Remove existing, fit, and install new the following parts:

TOTAL QTY	NAME OF	PART	PIECE	FIGURE	REF
REQ	PART	NO.	NO.	NO.	NO.
ONE	ADAPTER, FLEX	3N3017	7-4-1	7-4	2.2
ONE	GASKET	5H8331	7-4-5	7-4	2.2
ONE	GASKET	4N3955	7-4-9	7-4	2.2

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3.12.5 Remove existing, fit, and install new the following parts:

TOTAL NO.	NAME OF	PART	PIECE	FIGURE	REF
REQ	PART	NO.	NO.	NO.	NO.
ONE	SEAL	7M8485	7-6-3	7-6	2.2
3	GASKET,MANIFOLD	8S6410	7-6-9	7-6	2.2

3.12.6 Remove existing, fit and install new the following parts:

TOTAL QTY	NAME OF	PART	PIECE	FIGURE	REF
REQ	PART	NO.	NO.	NO.	NO.
2	SEAL	6L1648	7-7-4	7-7	2.2
2	GASKET	9L5908	7-7-10	7-7	2.2
2	GASKET	5S6735	7-7-14	7-7	2.2
2	SEAL	5M5860	7-7-20	7-7	2.2
4	CLAMP	5P0597	7-7-22	7-7	2.2
ONE	HOSE	SP1255	7-7-23	7-7	2.2
ONE	GASKET	2A3541	7-7-25	7-7	2.2
ONE	HOSE (2.75 INCH)	5P1257	7-7-26	7-7	2.2

3.12.7 Remove existing, fit and install new the following parts:

TOTAL QTY	NAME OF	PART	PIECE	FIGURE	REF
REQ	PART	NO.	NO.	NO.	NO.
ONE	SEAL	4L9021	7-8-6	7-8	2.2
ONE	RING	4M5285	7-8-11	7-8	2.2
ONE	GASKET	2P0220	7-8-13	7-8	2.2
ONE	BEARING	7L7508	7-8-14	7-8	2.2
ONE	SEAL ASSEMBLY	7L2130	7-8-17	7-8	2.2
ONE	WEAR PLATE	4L8473	7-8-18	7-8	2.2
ONE	SEAL, O-RING	2L7985	7-8-21	7-8	2.2
ONE	GASKET	1L4785	7-8-23	7-8	2.2
ONE	HOSE, (3.5 INCH)	5P1258	7-8-25	7-8	2.2
ONE	ZINC	5I7685	7-8-27	7-8	2.2
ONE	PIPE PLUG	6L2279	7-8-28	7-8	2.2
ONE	HOSE, 3 INCH)	5P1256	7-8-30	7-8	2.2
2	GASKET	2N5291	7-8-32	7-8	2.2
ONE	BUSHING	3B7764	7-8-43	7-8	2.2

3.12.8 Remove existing, fit and install new the following parts:

TOTAL QTY	NAME OF	PART	PIECE	FIGURE	REF
REQ	PART	NO.	NO.	NO.	NO.

SHIP: USS HURRICANE (PC-3)

ONE	GASKET, ELBOW	2P6132	7-9-2	7-9	2.2
ONE	GASKET	4N3841	7-9-9	7-9	2.2
ONE	GASKET	2N4561	7-9-12	7-9	2.2
ONE	HOSE, (2.3 INCH LG)	5P1260	7-9-15	7-9	2.2
ONE	GASKET	7N200	7-9-18	7-9	2.2
ONE	GASKET	6L6580	7-9-25	7-9	2.2
ONE	SEAL	9M4849	7-9-26	7-9	2.2

3.12.9 Remove existing, fit and install new the following parts:

TOTAL QTY	NAME OF	PART	PIECE	FIGURE	REF
REQ	PART	NO.	NO.	NO.	NO.
ONE	GASKET	8N5928	7-10-1	7-10	2.2
ONE	SEAL, WATER	4W3864	7-10-2	7-10	2.2
ONE	RING	1K6985	7-10-3	7-10	2.2
2	BEARING	6H3957	7-10-5	7-10	2.2
ONE	SEAL, OIL	8T5919	7-10-7	7-10	2.2

3.12.10 Grind and spot in the new valves to seats in accordance with 2.2.

(I) (G) "HYDROSTATIC TEST"

3.12.11 Accomplish the requirements of Section 8 of 2.7 prior to installation of each new flexible hose assembly.

3.12.11.1 Install new CRES identification tag on each flexible hose assembly listed in 3.12.2, engraved in accordance with paragraph 8.5 of 2.7.

3.12.12 Measure and record final sizes and clearances in accordance with 2.2.

3.12.12.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.12.5 to the SUPERVISOR.

3.12.13 Provide 8 mandays of labor and 1500 dollars of material for the procurement of new parts in place of those found to be missing or defective excluding parts specifically identified to be replaced. Do not exceed the dollar amount without prior approval of the SUPERVISOR. Total cost greater or less than above manday and dollar amounts will be the subject of an equitable adjustment.

3.12.13.1 Submit one legible copy, in hard copy or electronic media, of a weekly report to document labor and material expenditures to the SUPERVISOR.



SHIP: USS HURRICANE (PC-3)

(I) (G) "VERIFY CLEANLINESS"

3.12.14 Verify cleanliness of Ship Service Diesel Generator Engine interior prior to final closure.

3.13 Assemble, install, align and adjust the turbocharger in accordance with 2.2. paragraph 6-24.3 and 6-24.4

3.13.1 Fit and install new plugs, clamps, fasteners, clips not being replaced elsewhere in this item but found to be defective or unserviceable in accordance with 2.2.

3.13.2 Remove existing, fit, and install new the following parts:

TOTAL QTY	NAME OF	PIECE	REF	FIG	PART
REQ	PART	NO.	NO.	NO.	NO.
One Each	Kit, Cartridge		2.2	7-5	2W0715
One Each	Gasket	7-5-4	2.2	7-5	7M7273
One Each	Ring, Seal	7-5-24	2.2	7-5	8M5253
One Each	Seal	7-5-42	2.2	7-5	8M5248
One Each	Seal	7-5-44	2.2	7-5	3J7354
2 Each	Seal	7-5-46	2.2	7-5	3K0360
One Each	Seal	7-5-51	2.2	7-5	9M4849
One Each	Gasket	7-5-53	2.2	7-5	1S4810
One Each	Gasket	7-5-54	2.2	7-5	1S6595

3.13.3 Restore mating surfaces exposed by disassemble and removal. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

3.13.4 Measure and record final sizes and clearances in accordance with 2.2.

3.13.4.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.13.4 to the SUPERVISOR.

3.14 Assemble, install, align and adjust the starter motor in accordance with 2.2 and manufactures specifications.

3.14.1 Remove existing, fit, and install new the following parts:

TOTAL QTY	NAME OF PART	PIECE	REF	FIG DWG	PART NO.
REQ		NO.	NO.	NO.	
One Each	Connector	7-1-3	2.2	7-1	7T3271
One Each	Boot	7-1-9	2.2	7-1	7T3269

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One Each	Wire	7-1-162	2.2	7-1	7T3422
One Each	Kit, Bushing		2.2	7-1	7T3267
One Each	Kit, Lever		2.2	7-1	7T3268
One Each	Kit, Insulator		2.2	7-1	8T9884

3.14.2 Restore mating surfaces exposed by disassembly and removal. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

3.14.3 Measure and record final sizes and clearances, using 2.2 and manufactures specifications for guidance.

3.14.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.14.3 to the SUPERVISOR.

3.15 Accomplish the requirements of 009-14 of 2.1, for each gage and thermometer.

3.15.1 Submit one legible copy, in hard copy or electronic media, of a list of new parts installed in place of those found to be missing or defective with documenting invoices or other substantiating data to the SUPERVISOR. Total cost of new parts excluding parts specifically identified to be replaced shall not exceed 100 dollars without prior approval of the SUPERVISOR. Total cost greater or less than above dollar amount will be the subject of an equitable adjustment.

3.16 The length of externally threaded fasteners shall be such that a minimum of two threads to a maximum of five threads shall protrude beyond the crown of the tightened nut.

3.17 Accomplish the requirements 009-32 of 2.1, for surface preparation of ship's service diesel generator engine.

3.17.1 Accomplish preservation of ship's service diesel generator engine surfaces, using "Caterpillar White Paint" for prepared surfaces.

(I) (G) "FLUSH"

3.18 Flush engine water system, using 2.2 and 2.5 for guidance.

3.18.1 Fill the cooling water system with 50/50 mixture of distilled fresh water and anti-freeze (CATCOOL), approximately 11 gallons.

3.18.2 Heat mixture to 150 degrees Fahrenheit.

3.18.3 Circulate the mixture at 150 degrees Fahrenheit through system for a minimum of 30 minutes.

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3.18.4 Remove flushing mixture and flush system with clean fresh water until clear.

3.18.4.1 Upon completion of flush, drain engine cooling water system.

3.18.5 Fill cooling water system to the full mark with 50/50/ mixture of distilled fresh water and anti-freeze (CATCOOL), approximately 11 gallons.

(V) (G) "OPERATIONAL TEST"

3.19 Accomplish the prerequisite and operational test of the ships service diesel generator engine in accordance with 2.2 and manufacturer's test procedure.

3.19.1 Fill the ship service diesel generator engine lube oil system to the full mark with new oil approximately 7.3 gallons conforming to manufactures specifications.

3.19.2 Record test results on Test Data Sheets. .REREPORT: Prerequisite and Operational Test DATE:

3.19.2.1 Submit one legible copy, in hard copy or electronic media, of completed Test Data Sheets to the SUPERVISOR.

3.20 Reinstallation of removed portable access panels used to permit removal of Ship's Service Diesel Generator and Engine shall be installed using new gaskets conforming to ZZ-R-765 and new seals, grommets (nylon washers), bolts, washers and nuts in accordance with 2.2.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 311-22-002  
COAR: 16-003 PCN: EM02-Z552  
EM02-Z553  
CMP: NONE  
PLANNER: BENVIE  
SULLIVAN

1. SCOPE:

1.1 Title: Ship's Service Diesel Generator; remove, clean and test

1.2 Location of Work:

1.2.1 Aft Engine Room (3-36-0-E)

1.3 Identification:

1.3.1 Quantity (One): No. 2 Generator, 150 KW, 480 VAC, Freq 60 HZ  
Rated Amps 233, Frame 446, Exciter Volts NL/FL 6.8/24 Mfr.:  
Caterpillar Inc., Mfr. Part No. 5N63(60HZ)

1.3.2 Qty (One) Voltage Regulator Caterpillar P/N 9Y8400

2. REFERENCES:

2.1 Standard Items

2.2 S9311-C1-MMA-010, Technical Manual For Diesel Generator Set Model  
3306 DITB

2.3 S9086-KC-STM-010/CH-300 R4, Naval Ship's Technical Manual Electric  
Plant

2.4 302-6687009 Rev A, Electrical Rotating Machinery Water Solution  
Cleaning and Drying Process

2.5 SE000-00-EIM-160, Electronics Installation and Maintenance Book,  
General Maintenance, Section 3-2.1

2.6 3C310C400 Rev E, Ship Service Diesel Generators (SSDGs) #1 Tests

3. REQUIREMENTS:

3.1 Prior to cleaning, accomplish an operational test of SSDG #2 in  
accordance with 2.2.

SHIP: USS HURRICANE (PC-3)

3.1.1 Submit one legible copy, in hard copy or electronic media, of completed test results to the SUPERVISOR.

3.2 Remove and dispose of fluids to accomplish the requirements of this work item.

3.3 Accomplish the following to the equipment listed in 1.3 in accordance with 2.2.

3.3.1 Prior to disconnecting the equipment:

3.3.1.1 Record electrical hook-up data and thrust readings. Record air gap readings and bearing clearances for sleeve bearing equipment only.

3.3.1.2 Inspect coupling for cracks, broken segments, wear and misalignment in excess of the tolerances specified in 2.2.

3.3.1.3 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.3.1.1 and 3.3.1.2 to the SUPERVISOR.

3.4 Disconnect electrically and mechanically and disassemble, to the extent necessary, to clean the equipment listed in 1.3.1. Record electrical hook-up data, in accordance with 2.2 and the following:

3.4.1 Accomplish a 500 volt megger insulation resistance and continuity test of the windings and record readings.

3.4.1.1 Disconnect solid-state devices prior to measuring insulation resistance of windings.

3.4.1.2 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.4 and 3.4.1 to the SUPERVISOR.

3.5 Disconnect electrically and mechanically and remove equipment listed in 1.3.2 Record electrical hook-up data using 2.2 and 2.3 for guidance.

3.6 Accomplish the requirements of 009-16 of 2.1, for the equipment listed in 1.3.2 in accordance with 2.2 and 2.3 and the following:

3.6.1 Submit one legible copy, in hard copy or electronic media of a report listing new parts installed in place of those found to be missing or defective, with documenting invoices or other substantiating data to the SUPERVISOR. Total cost of new parts excluding parts specifically identified to be replaced, shall not exceed 200 dollars without prior approval of the SUPERVISOR. Total cost of new parts not specifically identified to be replaced, greater or less than above dollar amount, will be the subject of an equitable adjustment.

SHIP: USS HURRICANE (PC-3)

3.6.2 Cleaning of the equipment shall be in accordance with 2.5.

3.7 Remove the equipment listed in 1.3.1 to the shop.

3.7.1 Accomplish cleaning of each rotor and stator in accordance with Paragraph 300-4.5.5 of 2.3 and 2.4. Ensure connections and jumpers are thoroughly cleaned.

3.7.1.1 Remove the rotor completely free of the stator prior to cleaning.

3.7.1.2 Protect static excitor from moisture.

3.7.2 Dry each cleaned rotor and stator in accordance with Paragraph 300-5.3 of 2.3, ensuring process is continuously monitored. Record cleaning and drying process in accordance with 2.4. Maintain winding temperature at 220 degrees Fahrenheit while drying. Continue drying until the insulation resistance readings show no abrupt changes and do not increase more than 5 percent over a 12 hour period. The final value of insulation resistance for the rotor and stator windings at the completion of drying shall not be less than 100 megohms at 220 degrees Fahrenheit. The insulation resistance shall be taken using a 500 volt DC megger.

3.7.2.1 Submit one legible copy, in hard copy or electronic media, of completed 2.4 to the SUPERVISOR.

3.8 Repair lightly scored areas of frame, end bells and shaft by manual methods. Recondition threads and fit key to keyway.

3.8.1 Ensure the bearing journals and oil passages are clean and the drain and supply lines are unclogged and free of obstructions.

3.9 Reinstall equipment removed in 3.5.

3.9.1 Assemble the equipment listed in 1.3.1 in accordance with recorded hook-up data and 2.2.

3.9.2 Inspect shaft for freedom of rotation. Turn by hand at least three turns.

3.9.3 Align engine to the generator in accordance with 2.2.

3.9.4 Measure and record the air gap and bearing clearances (sleeve bearing equipment only), insulation resistance (at 500 volts DC) and thrust.

3.9.4.1 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.9.2, 3.9.3 and 3.9.4 to the SUPERVISOR.

SHIP: USS HURRICANE (PC-3)

(V) (G) "OPERATIONAL, LOAD AND PARALLEL TEST"

3.10 Accomplish the prerequisite and operational test of the ship's service generator set in accordance with 2.2 and 2.6.

3.10.1 Record test results on Test Data Sheets of 2.6.

3.10.1.1 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of completed Test Data Sheets to the SUPERVISOR.

3.11 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces of each gasket contact area.

4. NOTES:

4.1 Known source for Ship's Service Diesel Generator Cleaning: Pacific Defense Systems (PDS) POC: Roy LeBleu 1428 McKinley Ave. National City, CA 91950-4217 Phone: (619) 474-8122 Fax: (619) 477-3669 Cell: (619) 954-8111 Email: rlebleu@pacdef.com

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3)

ITEM NO: 311-85-001

COAR: 16-003

PCN: EXTY-0066

CMP: NONE

PLANNER: PFANTZ  
SULLIVAN

1. SCOPE:

1.1 Title: PC1 Class AER-0066E Rev 02, Forward Generator Exhaust Piping Mod; accomplish

1.2 Location of Work:

1.2.1 Fwd Engine Room (3-29-0-E), Frame 33-34, Stbd

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 259-7290677 Rev C, Forward Generator Exhaust Piping Modification

2.3 256-6736972 Rev G, Auxiliary Sea Water Cooling System Arrangement and Details

2.4 259-6736975 Rev C, Genset Engine Exhaust Piping System

2.5 501-6737058 Rev C, Piping Standards

2.6 PC1 CLASS AER-0066E Rev 02, Fwd Gen Exhaust Piping Mod

3. REQUIREMENTS:

3.1 Accomplish removals, modifications and installations incidental to PC1 Class AER-0066E Rev 02, Forward Generator Exhaust Piping Mod in accordance with 2.2, using 2.3 through 2.6 for guidance.

3.1.1 Retain existing lagging for reuse.

3.1.2 Install new hangers in accordance with 2.5.

3.1.3 Accomplish the requirements of 009-12 of 2.1, including Table One, Column A, Lines One through 10.



SHIP: USS HURRICANE (PC-3)

3.1.4 Restore mating surfaces exposed by removals. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

3.1.5 Gasket and fastener replacement shall be limited to the mechanical joints removed or disturbed for the accomplishment of this Work Item.

3.1.6 The length of externally threaded fasteners shall be such that a minimum of two threads to a maximum of five threads shall protrude beyond the crown of the tightened nut.

(V) (G) "HYDROSTATIC AND STATIC HEAD TEST"

3.2 Accomplish the requirements of 009-71 of 2.1, for new and disturbed seawater cooling piping and a static head test (water column equal to highest point) of the new and disturbed generator exhaust piping in accordance with Test Note T-1 of 2.2. Allowable leakage: None.

(V) (G) "OPERATIONAL AND UNOBSTRUCTED FLOW TEST"

3.3 Accomplish an operational and unobstructed flow test of the new and disturbed seawater cooling and generator exhaust piping systems under system operating pressures and temperatures in accordance with Test Note T-2 of 2.2.

3.3.1 Allowable leakage at new and disturbed joints: None.

3.4 Install new insulation along with retained existing insulation of 3.1.1 for new and disturbed surfaces.

3.5 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3)

ITEM NO: 311-85-002

COAR: 16-003

PCN: EXTY-0057

CMP: NONE

PLANNER: PFANTZ  
SULLIVAN

1. SCOPE:

1.1 Title: PC1 Class AER-0057E Rev 01, Aft Generator Exhaust Baffle Installation;  
accomplish

1.2 Location of Work:

1.2.1 Aft Engine Room (3-36-0-E)

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 259-7290751 Rev D, Aft Generator Exhaust Piping Baffle Installation

2.3 256-6736972 Rev G, Auxiliary Sea Water Cooling System Arrangement and  
Details

2.4 259-6736975 Rev C, Genset Engine Exhaust Piping System

2.5 185-7291376 Rev A, Foundation Incidental To Exhaust Baffle  
Installation

2.6 501-6737058 Rev C, Piping Standards

2.7 PC1 CLASS AER-0057E Rev 01, Aft Generator Exhaust Baffle Installation

3. REQUIREMENTS:

3.1 Accomplish removals, modifications and installations incidental to PC1  
Class AER-0057E Rev 01, Aft Generator Exhaust Baffle Installation in accordance  
with 2.2 and 2.7, using 2.3 through 2.6 for guidance.

3.1.1 Retain existing lagging for reuse.

3.1.2 Install new hangers in accordance with 2.6.

SHIP: USS HURRICANE (PC-3)

3.1.3 Accomplish the requirements of 009-12 of 2.1, including Table One, Column A, Lines One through 10.

3.1.4 Restore mating surfaces exposed by removals. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

3.1.5 Gasket and fastener replacement shall be limited to the mechanical joints removed or disturbed for the accomplishment of this Work Item.

3.1.6 The length of externally threaded fasteners shall be such that a minimum of two threads to a maximum of five threads shall protrude beyond the crown of the tightened nut.

(V) (G) "HYDROSTATIC AND STATIC HEAD TEST"

3.2 Accomplish the requirements of 009-71 of 2.1, for new and disturbed seawater cooling piping and a static head test (water column equal to highest point) of the new and disturbed generator exhaust piping in accordance with Test Note T-1 of 2.2. Allowable leakage: None.

(V) (G) "OPERATIONAL AND UNOBSTRUCTED FLOW TEST"

3.3 Accomplish an operational and unobstructed flow test of the new and disturbed seawater cooling and generator exhaust piping systems under system operating pressures and temperatures in accordance with Test Note T-2 of 2.2.

3.3.1 Allowable leakage at new and disturbed joints: None.

3.4 Install new insulation along with retained existing insulation of 3.1.1 for new and disturbed surfaces.

3.5 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

SHIP: USS HURRICANE (PC-3)

1. None.



SHIP: USS HURRICANE (PC-3)

3.3.1 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.3 to the SUPERVISOR.

3.3.2 Provide 5 mandays of labor and 500 dollars of material to accomplish repairing and testing of the No. One SSDG, 6 inch overboard discharge fitting at hull as approved by the SUPERVISOR.

3.3.3 Accomplish the requirements of 009-12 of 2.1, including Table One, Column A, Lines One through 10.

3.3.3.1 Accomplish nondestructive testing in accordance with Line 13.

3.3.4 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column D, Lines One through 7.

3.3.4.1 Accomplish liquid penetrant tests on hull and hull fitting in accordance with 2.4. The accept or reject criteria shall be in accordance with Class 2 of 2.5.

3.3.4.2 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.3.4.1 to the SUPERVISOR.

(V) "AIR TEST"

3.4 Accomplish an air test of the newly disturbed and repaired No. One SSDG, 6 inch exhaust piping system, using clean dry air at 5 PSIG for a minimum of fifteen minutes. Allowable leakage: None.

(V) (G) "OPERATIONAL TEST"

3.5 Accomplish an operational test of the No. One SSDG, 6 inch exhaust piping system under system operating pressures and temperatures.

3.5.1 Allowable leakage at new and disturbed joints: None.

3.5.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.5 to the SUPERVISOR.

3.6 Reinstall removable lagging blanket insulation retained in 3.2.1

3.7 Accomplish the requirements of 009-32 of 2.1 for preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

SHIP: USS HURRICANE (PC-3)

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>342-12-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EM02-P106</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>PFANTZ</u>

1. SCOPE:

1.1 Title: Exhaust Piping at Overboard; repair (DRYDOCK)

1.2 Location of Work:

1.2.1 Aft Engine Room (3-36-0-E), Frames 41-42, Port

1.3 Identification:

1.3.1 No. 2 SSDG, 6 Inch Diesel Exhaust Piping at Overboard Discharge  
Welded Hull Fitting

2. REFERENCES:

2.1 Standard Items

2.2 259-6736975 Rev C, Genset Engine Exhaust Piping System

2.3 Systems and Specifications, Steel Structures Painting Manual, Volume  
2

2.4 T9074-AS-GIB-010/271, Requirements for Nondestructive Testing Methods

2.5 MIL-STD-2035, Nondestructive Testing Acceptance Criteria

3. REQUIREMENTS:

3.1 Remove reusable lagging blanket insulation from the 6 inch exhaust piping at overboard discharge and lagging on hull fitting (at overboard discharge), listed in 1.3.1 and located in 1.2.1, using 2.2 for guidance.

3.1.1 Retain removable blanket insulation for reinstallation.

3.2 Power tool clean to bare metal the No. 2 SSDG, 6 inch overboard discharge fitting (inside and outside), located in 1.2.1 at hull. Accomplish the requirements of Surface Preparation Specification SSPC-SP-11 of 2.3.

(I) (G) "VISUAL INSPECTION"

3.3 Accomplish a visual inspection of the No. 2 SSDG, 6 inch overboard discharge fitting at hull.



SHIP: USS HURRICANE (PC-3)

3.3.1 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.3 to the SUPERVISOR.

3.3.2 Provide 5 mandays of labor and 500 dollars of material to accomplish repairing and testing of the No. 2 SSDG, 6 inch overboard discharge fitting at hull as approved by the SUPERVISOR.

3.3.3 Accomplish the requirements of 009-12 of 2.1, including Table One, Column A, Lines One through 10.

3.3.3.1 Accomplish nondestructive testing in accordance with Line 13.

3.3.4 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column D, Lines One through 7.

3.3.4.1 Accomplish liquid penetrant tests on hull and hull fitting in accordance with 2.4. The accept or reject criteria shall be in accordance with Class 2 of 2.5.

3.3.4.2 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.3.4.1 to the SUPERVISOR.

(V) "AIR TEST"

3.4 Accomplish an air test of the newly disturbed and repaired No. 2 SSDG, 6 inch exhaust piping system, using clean, dry air at 5 PSIG for a minimum of fifteen minutes. Allowable leakage: None.

(V) (G) "OPERATIONAL TEST"

3.5 Accomplish an operational test of the No. 2 SSDG, 6 inch exhaust piping system under system operating pressures and temperatures.

3.5.1 Allowable leakage at new and disturbed joints: None.

3.6 Install removable lagging blanket insulation retained in 3.2.1.

3.7 Accomplish the requirements of 009-32 of 2.1 for preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

SHIP: USS HURRICANE (PC-3)

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 437-21-001  
COAR: 16-003 PCN: See Attachment A  
CMP: NONE  
PLANNER: FLAHERTY

1. SCOPE:

1.1 Title: Tank Level Indicating (TLI) System; repair

1.2 Location of Work:

1.2.1 Throughout the Ship

1.3 Identification:

1.3.1 Quantity (12), Tank Level Indicating (TLI) System and Associated Equipment and Components, Mfr. Schott, Great Lake for the following tanks:

1.3.1.1 Dirty Oily Water Tanks

3-36-0-W

3-39-0-F

1.3.1.2 Grey Water Tanks

3-34-0-W

3-42-0-W

1.3.1.3 Potable Water Tanks

3-14-1-W

3-14-2-W

1.3.1.5 CHT Tank

3-31-0-W

1.3.1.6 Fuel Oil Tanks

3-20-1-F

3-20-2-F

SHIP: USS HURRICANE (PC-3)

3-43-0-F

3-43-1-F

3-43-2-F

2. REFERENCES:

- 2.1 Standard Items
- 2.2 672L-NAV Rev 1-692, Model 672L/699L, Level Measurement System
- 2.3 690L-NAV Rev 6-692, Model 690L 4-20 MA Level Transmitters (Blind and Indicating Styles)
- 2.4 14L-NAV Rev 5-692, Model 14L RF Electronic Level Switch
- 2.5 SE000-00-EIM-160, Electronic Installation and Maintenance Book, General Maintenance, Section 3-2.1
- 2.6 MIL-STD-454, Standard General Requirements for Electronic Equipment
- 2.7 436-6736963 Rev C, Tank Level Indicator System Ckt - 1TK
- 2.8 085-6736905 Rev E, Tank Capacity Curves
- 2.9 45790 Rev B, Technical Manual (EMI)

3. REQUIREMENTS:

- 3.1 Accomplish the requirements of 009-90 of 2.1.

3.1.1 Obtain the services of an on-site Schott, Great Lake Instruments Field Service Representative to inspect, repair, test and calibrate the equipment listed in 1.3 in accordance with 2.2 through 2.9.

3.1.2 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.1.1 to the SUPERVISOR.

3.1.2.1 Provide 15 mandays of labor and 4000 dollars of material to correct discrepancies listed in 3.1.2, not identified in this Work Item and as directed by the SUPERVISOR. Total cost greater or less than above dollar amount will be the subject of an equitable adjustment.

3.1.2.2 Submit one legible copy, in hard copy or electronic media of a report listing results of the Weekly Labor and Material expenditures to the SUPERVISOR.

- 3.2 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column

SHIP: USS HURRICANE (PC-3)

A, Lines One through 7.

3.3 Accomplish the requirements of 009-32 of 2.1 for the new and disturbed surfaces.

(V) (G) "ALIGN, ADJUST, AND CALIBRATE"

3.4 Align, adjust and calibrate the Tank Level Indicating (TLI) System for each tank listed in 1.3 in accordance with Part Three Section 4 of 2.2. Part Three Section 2 of 2.3 and Part Three Section 3 of 2.4 and 2.8.

3.4.1 Install new switch for Grey Water Tank 3-42-0-W listed in 1.3.1.2.

3.4.2 Affix a calibration label denoting the name and location of the calibration facility, date of calibration and due date of next calibration to the face of each Tank Level Indicating (TLI) indicator.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3)

ATTACHMENT A  
PCN IDENTIFICATION

EE01-P109	CHT TK TLI - RPR
EE01-P110	SWITCH OPERATES INTERMITTENTLY
EE01-Z596	FO TK TLI - RPR
EE01-Z597	FO TK TLI - RPR
EE01-Z599	FO TK TLI - RPR
EE01-Z600	FO TK TLI - RPR
EE01-Z601	FO TK TLI - RPR
EE01-Z602	POTW TK TLI - RPR
EE01-Z603	POTW TK TLI - RPR
EE01-Z604	OILY WTR TK TLI - INSP/TST
EE01-Z605	OILY WTR TK TLI - RPR
EE01-Z606	FO TK TLI - INSP/TST
EE01-Z607	FO TK TLI - INSP/TST
EE01-Z608	FO TK TLI - INSP/TST
EE01-Z610	FO TK TLI - INSP/TST
EE01-Z611	FO TK TLI - INSP/TST
EE01-Z612	POTW TK TLI - INSP/TST
EE01-Z613	POTW TK TLI - INSP/TST
EE01-Z614	GREY WTR TK TLI - INSP/TST
EE01-Z615	GREY WTR TK TLI - INSP/TST

SHIP: USS HURRICANE (PC-3)

EE01-Z616 GREY WTR TK TLI - RPR

EE01-Z617 GREY WTR TK TLI - RPR

EM01-Z588 DIRTY OIL TANK TLI - INSP/TST

EM01-Z589 DIRTY OIL TANK TLI - RPR

SHIP: USS HURRICANE (PC-3)

ITEM NO: 508-11-001

COAR: 16-003

PCN: EM01-Z591

CMP: NONE

PLANNER: PFANTZ

1. SCOPE:

1.1 Title: Lagging and Insulation within Machinery Spaces; replace

1.2 Location of Work:

1.2.1 Fwd Engine Room (3-29-0-E)

1.2.2 Aft Engine Room (3-36-0-E)

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

3. REQUIREMENTS:

3.1 Provide 12 mandays of labor and 3,000 dollars of material for lagging repairs, as designated by the SUPERVISOR. Total cost greater or less than above manday and dollar amounts, will be the subject of an equitable adjustment.

3.2 Accomplish the requirements of 009-32 of 2.1 for surface preparation and preservation of new and disturbed surfaces.

3.2.1 Submit one legible copy, in hard copy or electronic media, of a weekly report to document labor and material expenditures to the SUPERVISOR.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:



SHIP: USS HURRICANE (PC-3)

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3)

ITEM NO: 508-12-001

COAR: 16-003

PCN: EM01-Z592

CMP: NONE

PLANNER: PFANTZ

1. SCOPE:

1.1 Title: Lagging and Insulation Outside Machinery Spaces; replace

1.2 Location of Work:

1.2.1 Throughout Ship

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

3. REQUIREMENTS:

3.1 Provide 3 mandays of labor and 300 dollars of material to accomplish additional lagging repairs not previously identified in this Work Item, when directed by the SUPERVISOR. Total cost greater or less than above manday and dollar amounts when authorized will be the subject of an equitable adjustment.

3.1.1 Submit one legible copy, in hard copy or electronic media, of a weekly report to document labor and material expenditures to the SUPERVISOR.

3.2 Accomplish the requirements of 009-32 of 2.1 for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

SHIP: USS HURRICANE (PC-3)

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 513-11-001  
COAR: 16-003 PCN: EE01-Z595  
EE01-Z598  
CMP: NONE  
PLANNER: PFANTZ  
SULLIVAN

1. SCOPE:

1.1 Title: Forward and Aft Engine Room Supply Fans; repair and test

1.2 Location of Work:

1.2.1 Fwd Engine Room P/S (3-29-0-E)

1.2.2 Aft Engine Room P/S (3-36-0-E)

1.3 Identification:

1.3.1 Quantity (4) Vaneaxial Fan: Hartzell Fan, Model 49-36-DL4

2. REFERENCES:

2.1 Standard Items

2.2 501-4870232 Rev B, Ventilation General Notes for Surface Ships

2.3 514-6737079 Rev E, HVAC Systems and Details

2.4 4C513C400 Rev C, Machinery Space Ventilation Operational Test

3. REQUIREMENTS:

3.1 Disconnect electrically and mechanically and remove equipment listed in 1.3, using 2.2 and 2.3 for guidance. Record mechanical and electrical hook-up data.

3.2 Repair and test the equipment listed in 1.3.

3.2.1 Straighten each shaft to within 0.002 inch total indicator reading.

3.3 Accomplish the following to each fan and fan housing:

3.3.1 Blast clean each impeller with non-erosive cleaning agent.

3.3.1.1 Cleaning agent shall be aluminum oxide with a particle

SHIP: USS HURRICANE (PC-3)

size no coarser than 220 grit. Other cleaning agents such as glass beads, ash, and walnut shells are acceptable provided that the resultant finish is equivalent to that provided by 220 grit or finer aluminum oxide. The use of sand is prohibited.

3.3.1.2 Protect each machined surface against the action of the cleaning agent.

3.3.2 Inspect each impeller for cracks.

3.3.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.3.2 to the SUPERVISOR.

3.3.3 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of the interior and exterior surfaces of each fan housing.

3.4 Accomplish the installation of fan motor using information recorded in 3.1 and perform a shop test of each motor for a minimum of one hour after temperatures stabilize.

3.4.1 Measure and record cold insulation resistances of windings to ground and between windings prior to test, using a 500 volt megger.

3.4.2 Measure and record speeds, phase voltages, phase amperages and bearing and frame temperatures at 15-minute intervals during test.

3.4.3 Measure and record hot insulation resistances of windings to ground and between windings immediately upon completion of test, using a 500 volt megger.

3.4.4 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.4.1 through 3.4.3 to the SUPERVISOR.

3.5 Install and connect the equipment listed in 1.3, using new gaskets in accordance with recorded hook-up data and 2.3.

3.5.1 Install new mounting fasteners conforming to MIL-DTL-1222, Type I or II, Grade 5 or 8, zinc plated steel.

3.5.2 Verify proper fan rotation.

(V) (G) "OPERATIONAL TEST"

3.6 Accomplish the requirements of 2.4.

3.6.1 Submit one legible copy, in hard copy or electronic media, of a report listing the results of 3.6 to the SUPERVISOR.

SHIP: USS HURRICANE (PC-3)

4. NOTES:

4.1 Known source for fan motor:(QTY 4) Reliance Electric Industrial Co.P/N  
1YAB64536

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 514-85-001  
COAR: 16-003 PCN: EXTY-0079  
CMP: NONE  
PLANNER: BENVIE  
SULLIVAN

1. SCOPE:

1.1 Title: PC1 Class AER-0079E, Rev 01, A/C Compressor Controller Enclosure Replacement; accomplish

1.2 Location of Work:

1.2.1 Aux. Mchry Rm (3-49-0-E)

1.2.2 Aft Engine Room (3-36-0-E)

1.3 Identification:

1.3.1 Qty (2) Enclosures Hoffman P/N A-1412NFSS

2. REFERENCES:

2.1 Standard Items

2.2 PC 1 AER-0079E, A/C Compressor Controller Enclosure Replacement

2.3 514-7445230 Rev -, A/C Compressor Controller Enclosure Replacement

2.4 DOD-STD-2003, Electric Plant Installation Methods for Surface Ships and Submarines.

2.5 MIL-STD-1310, Shipboard Bonding, Grounding and Other Techniques for Electromagnetic Compatibility and Safety

3. REQUIREMENTS:

3.1 Accomplish the requirements of PC Class AER-0079E, A/C Compressor Controller Enclosure Replacement, in accordance with 2.2, 2.3 and 2.4.

3.2 Bond and ground equipment in accordance with 2.5. Grounding straps shall be CRES 316L for topside equipment.

3.2.1 Acceptable criteria for equipment to hull ground via bond or ground strap is one-tenth ohm maximum.

3.3 Verify by operational checks that all electrical devices or components,

SHIP: USS HURRICANE (PC-3)

installed or modified by this AER, operate satisfactorily.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.



SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>520-11-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EM01-Z616</u> <u>EM01-Z617</u> <u>EM01-Z618</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>PFANTZ</u>

1. SCOPE:

1.1 Title: Sea Valves; repair and replace

1.2 Location of Work:

1.2.1 Throughout the Ship

1.3 Identification:

1.3.1 Identification of sea valves in paragraphs 3.2, 3.3 and 3.4

2. REFERENCES:

2.1 Standard Items

2.2 256-6736972 Rev G, Aux Sea Water Cooling System Arrangement and Details

2.3 256-6736971 Rev G, Main Engine Salt Water Cooling System Arrangement and Details

2.4 521-6737060 Rev F, Firemain Piping Arrangement and Details

2.5 S9086-RK-STM-010/CH-505, Piping Systems

2.6 MIL-STD-777, Schedule of Piping, Valves, Fittings, and Associated Piping Components for Naval Surface Ships

3. REQUIREMENTS:

3.1 Take precautions contained in Paragraph 505-1.2 of 2.5 during the accomplishment of this work item.

3.2 Remove existing globe valves listed:

NAME	SYSTEM NO.	SIZE	TYPE	SERVICE
OVBD	1-MSW-V-2A	4 INCH	GLOBE	No1 MN ENG SW
OVBD	4-MSW-V-2B	4 INCH	GLOBE	No4 MN ENG SW

SHIP: USS HURRICANE (PC-3)

OVBD	2-MSW-V-2C	4 INCH	GLOBE	No2 MN ENG SW
OVBD	3-MSW-V-2D	4 INCH	GLOBE	No3 MN ENG SW
OVBD	ASW-V-13	1 1/2 INCH	GLOBE	No1 GEN SW
OVBD	ASW-V-17	1 1/2 INCH	GLOBE	No2 GEN SW

### 3.3 Remove the existing gate valves:

NAME	SYSTEM NO.	LOCATION	SIZE	TYPE	SERVICE
SUCTION	1-MSW-V-1A	3-29-0-E	5 INCH	GATE	No1 MN ENG SW
SUCTION	4-MSW-V-1B	3-29-0-E	5 INCH	GATE	No2 MN ENG SW
SUCTION	2-MSW-V-1C	3-36-0-E	5 INCH	GATE	No3 MN ENG SW
SUCTION	3-MSW-V-1D	3-36-0-E	5 INCH	GATE	No4 MN ENG SW
SUCTION	ASW-V-12	3-29-0-E	2 1/2 INCH	GATE	FWD AUX SW
SUCTION	ASW-V-16	3-29-0-E	2 INCH	GATE	AFT AUX SW

### 3.4 Remove the existing ball valves:

SYSTEM NO.	LOCATION	SIZE	TYPE	SERVICE
FM-V-14	FWD ENG RM C.O.	4 INCH	BALL	FIREMAIN
FM-V-9B	FIRE P NO.2 DISCH	4 INCH	BALL	FIREMAIN
FM-V-2-19-4	BHD 19 C.O.	4 INCH	BALL	FIREMAIN
FM-V-2-14-2	BHD 14 C.O.	4 INCH	BALL	FIREMAIN

3.5 Install new valves listed in 3.2 and 3.3 which are under 4 inches in size, using 2.2 for guidance.

3.6 Repair the globe valves (1-MSW-V-2A, 4-MSW-V-2B, 2MSW-V-2C, 3-MSW-V-2) listed in 3.2, using 2.3, 2.5, and 2.6 for guidance.

3.6.1 Accomplish the requirements of 009-51 of 2.1, for globe valves listed in 3.6.

3.6.2 The body test pressure is 100 PSIG.

3.6.3 The seat tightness test pressure is 100 PSIG.

3.7 Repair the gate valves (1-MSW-V-2A, 4-MSW-V-2B, 2-MSW-V-2C, 3-MSW-V-2D) listed in 3.3, using 2.3, 2.5 and 2.6 for guidance.

3.7.1 Accomplish the requirements of 009-47 of 2.1, for gate valves listed in 3.7.

3.7.2 The body test pressure is 100 PSIG.

3.7.3 The seat tightness test pressure is 100 PSIG.

SHIP: USS HURRICANE (PC-3)

3.8 Repair the ball valves (FM-V-14, FM-V-9B, FM-V-2-19-4, FM-V-2-14-2) listed in 3.4, using 2.4, 2.5 and 2.6 for guidance.

3.8.1 Accomplish the requirements of 009-96 of 2.1, for ball valves listed in 3.8.

3.8.2 The body test pressure is 100 PSIG.

3.8.3 The seat tightness test pressure is 100 PSIG.

3.9 Restore exposed mating surfaces. Repair by removing high spots, burrs, abrasions and foreign matter, where removal can be accomplished using hand tools.

3.9.1 Assemble, install, align, adjust, and connect and lubricate each valve and remote operator listed in 3.2, 3.3 and 3.4 installing new gaskets, seals, fasteners, packing, o-rings, locking wire, sealing compounds, adhesives, and lubricants.

3.9.1.1 Fastener replacement in 3.9.1 shall be limited to the existing fasteners found defective or unsuitable for further service.

3.9.2 New fasteners, gaskets and packing for valves listed in 3.2, 3.3 and 3.4 shall be in accordance with 2.6.

3.9.3 Each new valve connection flanges shall match in-line pipe flange.

(I)(V) "BOLTING INSPECTION"

3.10 Inspect the bolting (in-line flanges and bonnet flange) for each new valve in accordance with Paragraph 505-9.19.3.2 of 2.5

3.10.1 Submit one legible copy, in hard copy or electronic media, of a report listing the results of 3.10 to the SUPERVISOR.

3.11 Accomplish the requirements of 009-32 of 2.1, for all new and disturbed surfaces.

(I)(V) "OPERATIONAL TEST, INSPECTION AND ADJUSTMENT"

3.12 Accomplish the following operational test, inspection and adjustment to each valve.

3.12.1 Operationally test each valve manually, electrically and from the remote operating station prior to the ship becoming waterborne.

3.12.1.1 Make corrections and adjustments to place each valve an optimum operating condition. Verify proper operation by cycling each valve through two complete cycles from fully open to fully shut. Allowable binding at stems: None.

SHIP: USS HURRICANE (PC-3)

3.12.2 Visually inspect each valve while the ship is being waterborne.  
Allowable leakage at the stems and new and disturbed joints: None.

3.12.3 Submit one legible copy, in hard copy or electronic media, of a report listing the results of 3.12.1 and 3.12.2 to the SUPERVISOR.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 522-85-001  
COAR: 16-003 PCN: EXTY-0040  
CMP: NONE  
PLANNER: PFANTZ  
SULLIVAN

1. SCOPE:

1.1 Title: PC1 Class AER 0040E, Replace Miscellaneous Ball Valves; accomplish

1.2 Location of Work:

1.2.1 Forward Engine Room (3-29-0-E), Frame 29-36

1.2.2 Aft Engine Room (3-36-0-E), Frame 36-43

1.2.3 Aux Machinery Space No.1 (3-14-0-E)

1.3 Identification:

1.3.1 Valves V-1, V-2, V-3, V-4, and V-5

2. REFERENCES:

2.1 Standard Items

2.2 PC1 CLASS AER 0040E, Replace Miscellaneous Ball Valves

2.3 505-7288088 Rev A, Installation Miscellaneous Ball Valve Replacements

2.4 521-6737060 Rev I, Firemain Piping Arrangement and Details

2.5 501-6737077 Rev I, Pipe System Schematic Firemain Piping

2.6 541-6737056 Rev E, Fuel Oil Transfer Piping Arrangement & Details

2.7 261-6736976 Rev E, Fuel Oil Service Piping Arrangement & Details

2.8 501-6737078 Rev G, Pipe System Schematics Fuel Oil Piping

2.9 506-6737062 Rev C, Reach Rod Details Layout

2.10 MIL-STD-777, Schedule of Piping, Valves, Fittings, and Associated  
Piping Components for Naval Surface Ships

2.11 ASTM F1138, Spray Shields for Mechanical Joints

SHIP: USS HURRICANE (PC-3)

3. REQUIREMENTS:

3.1 Accomplish removals, modifications and installations incidental to PC1 Class AER-0040E, Replace Miscellaneous Ball Valves, at locations listed in 1.2, in accordance with 2.2 through 2.10.

3.2 Install new valves listed in 1.3.

3.2.1 Fit, and install new the following valves:

TOTAL QUANTITY REQUIRED	SIZE OF BALL VALVE	PIECE NO. ON REFERENCE	PART NO.
3	2 1/2 INCH	V-1 OF 2.3	2 1/2" E0132-32ET-15L
3	3/4 INCH	V-2 OF 2.3	3/4" E0132-32ET-15L
5	1 1/2 INCH	V-4 OF 2.3	1 1/2" E0132-32ET-15L
5	1 INCH	V-5 OF 2.3	1" E0132-32ET-15L
3	4 Inch	V-3 of 2.3	4" E0132-32ET-15L

(V) (G) "OPERATIONAL TEST"

3.3 Accomplish an operational test of each newly installed valve under system operating pressures and temperatures. Allowable leakage: None.

3.3.1 Cycle valves from both the manual position and the remote operating station, from full closed to full open to full closed four times. Allowable external leakage: None.

3.3.2 Remote operators shall turn freely, no binding or restriction allowed.

3.4 Install new aluminized cloth spray shields on new and disturbed fuel oil system piping and valve flanges, using 2.11 for guidance.

3.5 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column A, Lines One through 7.

3.6 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 None.

SHIP: USS HURRICANE (PC-3)

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 529-11-001  
COAR: 16-003 PCN: EDC1-P202  
CMP: NONE  
PLANNER: PFANTZ  
FLAHERTY

1. SCOPE:

1.1 Title: Drainage System Valves; repair

1.2 Location of Work:

1.2.1 Throughout the Ship

1.3 Identification:

1.3.1 Quantity (2), 4-Inch Ball Valve, FF Flanged, 150 PSIG, Bronze Body, 316 Trim, MFG:PBM, V-1 of 2.2. Drainage Sytem No. DR-V-8, and DR-V-13B

1.3.2 Quantity (One), 4 Inch Angle Globe Stop-Check Valve, FF Flanged, 150 psig, Bronze Body, Monel Trim, V-9 of 2.2, Drainage System No. DR-V-20

2. REFERENCES:

2.1 Standard Items

2.2 529-6737050 Rev G, Bilge Piping Arrangement and Details

3. REQUIREMENTS:

3.1 Remove the valves listed in 1.3.1 and 1.3.2, using 2.2 for guidance.

3.2 Disassemble, inspect and repair valves listed in 1.3.1, using 2.2 for guidance.

3.2.1 Accomplish the requirements of 009-51 of 2.1 for each globe valve listed in 1.3.1, using 2.2 for guidance.

3.2.1.1 The seat tightness test pressure is 100 PSIG.

3.2.2 Provide 8 mandays of labor and 500 dollars of material to accomplish repairs not previously identified in this Work Item, when directed by the SUPERVISOR. Total cost greater or less than above manday and dollar amounts when authorized will be the subject of an equitable adjustment.



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3.2.2.1 Submit one legible copy, in hard copy or electronic media, of a weekly report to document labor and material expenditures to the SUPERVISOR.

3.3 Accomplish the requirements of 009-96 of 2.1 for each ball valve listed in 1.3.2, using 2.2 for guidance.

3.3.1 The seat tightness test pressure is 100 PSIG.

3.4 Restore the mating surfaces exposed by removals. Repair by removing high spots, burrs, abrasions and foreign matter, where removal can be accomplished by hand tools.

3.5 Install the repaired valves using new gaskets and flange fasteners, using the Joint Identification Table on Sheet 2 of 2.2 for guidance.

(I) (G) "OPERATIONAL TEST"

3.6 Operationally test the repaired valves under system operating pressure. Allowable leakage: None.

3.7 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

ITEM NO: 531-52-001

PCN: EE01-Z651

CMP: NONE

PLANNER: PFANTZ  
SULLIVAN

1. SCOPE :

1.1 Title: Seawater Booster Pump; replace

## 1.2 Location of Work:

1.2.1 Aft Engine Room; (3-36-0-E)

### 1.3 Identification:

1.3.1 Quantity (One): Seawater Booster Pump: OBERDORFER Model 815B-64T, Bronze, Centrifugal, Closed-Coupled, 1 1/4 Inch NPT Outlet X 1 1/2 Inch Inlet, 1 1/2 HP @3450 RPM, 20 GPM @ 41 PSI, 230/460 VOLTS, 60 HZ, 3, TEFC Motor

## 2. REFERENCES :

## 2.1 Standard Items

## 2.2 531-6737068 Rev C, Watermaker Arrangement and Details

### 3. REQUIREMENTS :

3.1 Remove and dispose of fluids to accomplish the requirements of this work item.

3.2 Disconnect electrically and mechanically and remove equipment listed in 1.3. Record electrical hook-up data.

3.3 Install, align, connect and adjust the new seawater booster pump listed 1.3, using 2.2 for guidance.

( I ) " P I P I N G   A L I G N M E N T "

3.3.1 Align the piping to the equipment. Piping shall be supported independently and shall not impose a strain on the pump. Replace up to two each pipe hangers to accomplish alignment.

3.3.2 Install new salt water piping joint gaskets and fasteners. Gaskets shall conform to HH-P-151, Class I, cloth inserted rubber, or MIL-PRF-

SHIP: USS HURRICANE (PC-3)

1149, Type II, Class I, synthetic rubber. Fasteners shall conform to MIL-DTL-1222, Type I, Grade 400 or 405, Class A or B, QQ-N-281, nickel-copper alloy.

3.4 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

(V) (G) "OPERATIONAL TEST"

3.5 Accomplish an operational test of seawater booster pump and motor in accordance with 2.2.

3.5.1 Submit one legible copy, in hard copy or electronic media, of the results of 3.5 to the SUPERVISOR.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>531-80-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EXSA-0079</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>FLAHERTY</u>

1. SCOPE:

1.1 Title: ShipAlt PC1-0079D, Reverse Osmosis Replacement; accomplish

1.2 Location of Work:

1.2.1 Throughout Ship

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 PC-1 CLASS S/A 0079D Rev -, Reverse Osmosis Replacement

2.3 531-7645062 Rev -, Reverse Osmosis Replacement Arrangement and Details

2.4 437-7645006 Rev -, Reverse Osmosis Replacement Block Wiring Diagram

2.5 185-7645308 Rev -, Rev Osmosis Repl Fnd

2.6 320-6737016 Rev K, One Line Diagram

2.7 256-6736972 Rev G, Auxilary Sea Water Cooling System Arrangement and Details

2.8 533-6737066 Rev C, Potable Water Piping Arrangement and Details

2.9 163-6736927 Rev F, Aux. Sea Chest Arrgt. & Details

2.10 501-6737077 Rev I, Pipe System Schematic Firemain Piping

2.11 501-6737041 Rev J, Piping System Schematics Potable Water Piping

2.12 521-6737060 Rev F, Firemain Piping Arrangement and Details

2.13 529-6737063 Rev F, Oily Water Separator Piping Arrangement and Details

2.14 MIL-STD-1310, Shipboard bonding, Grounding and other Techniques for Electromagnetic Compatibility and Safety

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3. REQUIREMENTS:

3.1 Accomplish removals, modifications, and installations incidental to S/A PC1-0079D, Reverse Osmosis Replacement in accordance with 2.2 through 2.5, using 2.6 through 2.13 as guidance.

3.1.1 Accomplish the requirements of 009-22 of 2.1, for new, rerouted and modified cables.

3.1.2 Bond and ground equipment in accordance with 2.14.

3.1.2.1 Acceptable criteria for equipment to hull ground via bond or ground strap is one-tenth ohm maximum.

3.2 Remove unused pipe hangers, foundations, clips, label plates and studs.

3.2.1 Chip and grind surfaces flush and smooth in way of removals.

3.3 Restore mating surfaces exposed by piping and fitting removals. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

3.4 Accomplish the requirements of 009-12 of 2.1, including Table One, Column(s) A and B, Lines One through 10.

3.5 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column(s) A, B and C, Lines One through 7.

(V)(G) "HYDROSTATIC TEST"

3.6 Accomplish the requirements of 2.3 for the hydrostatic testing of the new and disturbed system piping.

3.6.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.6 to the SUPERVISOR.

(V)(G) "OPERATIONAL TEST"

3.7 Accomplish the requirements of 2.3 for the operational test of the new R.O. units (Watermakers).

3.7.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.7 to the SUPERVISOR.

3.8 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation for new and disturbed surfaces.

4. NOTES:

4.1 None.

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5. GOVERNMENT FURNISHED MATERIAL (GFM) :

5.1 LLTM :

1. None.

5.2 PUSH MATERIAL :

1. None.

5.3 KITTED MATERIAL :

1. None.

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COAR:	<u>16-003</u>	PCN:	<u>EM01-Z679</u> <u>EM01-Z680</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>PFANTZ</u> <u>SULLIVAN</u>

1. SCOPE:

1.1 Title: Recirculating Brominator; repair and test

1.2 Location of Work:

1.2.1 Aux Machinery Room No. One (3-14-0-E)

1.3 Identification:

1.3.1 Quantity (One EA), Potable Water Disinfection System  
Mfr: Plymouth Products, Inc  
Sheboygan, WI 53081  
Model No. SSFM-100M-SYS

2. REFERENCES:

2.1 Standard Items

2.2 555-6737066 Rev C, Pot Water Piping Arrangement and Details

2.3 MODEL SSFM-100M-SYS, Potable Water Disinfection System OP Instructions  
and Maintenance Manual

2.4 S9533-BJ-MMA-010/3BSP4, Bromine Analyzer Manual

3. REQUIREMENTS:

3.1 Disassemble the Recirculating Bromine Feeder listed in 1.3.1 in  
accordance with 2.2 and 2.3.

3.1.1 Accomplish the requirements of 009-32 of 2.1, for surfaces  
exposed by removals.

3.2 Clean and inspect and the Recirculating Bromine Feeder in accordance  
with 2.3.

3.2.1 Accomplish the inspection of the Feeder Assembly, Feed Timer  
Valve, Water Meter, and Header Assembly.

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3.2.1.1 Accomplish the overhaul of the Header assembly to replace the preformed packing.

3.2.1.2 Provide 3 mandays and 500 dollars of material for any additional repairs, as designated by the SUPERVISOR. Total cost greater or less than above manday and dollar amounts, will be the subject of an equitable adjustment.

3.2.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.2 to the SUPERVISOR.

3.3 Accomplish the reassembly of the Recirculating Bromine Feeder in accordance with 2.3.

3.3.1 Reinstall Recirculating Bromine Feeder using 2.2 for guidance.

3.3.2 Prime system and check for leaks in accordance with 2.3.

(I)(G) "OPERATIONAL AND BROMINE RESIDUAL TEST"

3.4 Accomplish an Operational Test and Bromine Residual Test of repaired Recirculation Bromine Feeder in accordance with 2.4, acceptable free bromine shall be in accordance with paragraph 4-3.5 of 2.4.

3.4.1 Submit one legible copy, in hard copy or electronic media, of completed test data sheet in accordance with 2.4 to the SUPERVISOR.

3.5 Accomplish the requirements of 009-32 of 2.1, for new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL(GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.



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ITEM NO: 540-11-001

COAR: 16-003

PCN: WD01-P201

CMP: NONE

PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Release Handle Locker for Gas Can Storage; repair

1.2 Location of Work:

1.2.1 Main Deck, Frame 34, Starboard

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 671-6737107 Rev D, Gas Can Storage Rack & Details

3. REQUIREMENTS:

3.1 Accomplish installation of 2 new quick release pins and lanyards where missing at inside and outside of release handle locker located in 1.2, in accordance with 2.2.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

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ITEM NO: 562-11-001

PCN: WD01-Z687

CMP : NONE

PLANNER: PFANTZ  
SULLIVAN

1. SCOPE :

1.1 Title: Starboard Rudder; repair (DRYDOCK)

## 1.2 Location of Work:

### 1.2.1 Drydock

### 1.2.2 Steering Gear Room (3-53-0-E)

### 1.3 Identification:

1.3.1 Quantity (One): Starboard Rudder Assembly

## 2. REFERENCES :

## 2.1 Standard Items

## 2.2 562-6737055 Rev J, Rudder Details

### 2.3 561-6737054 Rev F, Steering System Details

## 2.4 S9086-HN-STM-010/CH-244, Propulsion Bearings and Seals

### 3. REQUIREMENTS:

3.1 Disassemble and remove the starboard rudder assembly in accordance with 2.2 and 2.3.

3.1.1 Remove and dispose of fluids from the rudder assembly.

3.1.2 Clean internal and external surfaces free of foreign matter leaving no residue or injurious effects.

3.1.3 Measure and record sizes and clearances of each wearing part and fit area in accordance with 2.2 and Chapter 5 of 2.4.

(I) "VISUAL INSPECTION"

3.1.4 Accomplish a visual inspection of the starboard rudder for structural damage, deterioration and preservation failure.

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(I) "WEAR AND DEFECTS"

3.1.5 Inspect each part for wear and defects, using 2.3 and Chapter 5 of 2.4 for accept or reject criteria.

3.1.6 Accomplish the requirements of 009-25 of 2.1, for air test of the rudder. Test pressure shall be 2 PSIG. Maintain test pressure for 15 minutes for temperature stabilization prior to start of test. Hold test pressure for 10 minutes. Allowable drop in pressure: None.

3.1.6.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.1.6 to the SUPERVISOR.

3.1.6.2 Prior to packing and crating, visually inspect the removed equipment for general condition and completeness.

3.2 Repair the starboard rudder assembly in accordance with 2.3 and Chapter 5 of 2.4.

3.2.1 Measure and record rudder stock runout.

3.2.1.1 Straighten the stock to within 0.003 inch total indicator reading.

3.2.2 Stone the stock journal and keyway to remove high spots.

3.2.3 Chase and tap exposed threaded areas.

3.2.4 Accomplish 5 linear feet of weld repair and one square foot of clad weld repair as directed by the SUPERVISOR for the starboard rudder.

3.2.4.1 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column A, Lines One through 7.

3.2.4.2 Accomplish non-destructive testing in accordance with Line 10.

3.2.5 Accomplish the requirements of 009-25 of 2.1, for air test of the rudder. Test pressure shall be 2 PSIG. Maintain test pressure for 15 minutes for temperature stabilization prior to start of test. Hold test pressure for 10 minutes. Allowable drop in pressure: None.

3.2.5.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.2 and 3.2.5 to the SUPERVISOR.

3.2.6 Fill and drain each rudder with rust preventive compound conforming to MIL-C-16173 Grade I. Install new fill and drain plugs conforming to the specifications of the material list of 2.2.

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3.2.6.1 New plugs installed in 3.2.6 shall be installed with thread locking/sealing compound in accordance with 2.2.

3.3 Reassemble and install the starboard rudder assembly in accordance with 2.2 and 2.3.

3.3.1 Remove existing, fit, and install new the following parts:

TOTAL QUANTITY REQUIRED	NAME OF PART	PIECE NO.	REF NO.	PART NO.
One	Bearing-Lower Rudder Tube	7f	2.2	
One	Bushing, Bronze	8a	2.2	
One	Key for Rudder Stock	12	2.2	
One	Upper Seal	13	2.2	55118
One	Bearing- Sherical Roller Bearing	16	2.2	SKF-NO. 22230
One	Lower Seal	17	2.2	62941
14 FT	Packing Material	21	2.2	

3.3.1.1 Fit and install new seals, screws, washers, and fasteners for those missing or unserviceable, conforming to the specifications on Material List of 2.2.

3.3.1.2 Install thread locking/sealing compound in accordance with 2.2.

3.3.2 Measure and record final sizes and clearances in accordance with 2.2 and 2.4.

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3.3.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.3.2 to the SUPERVISOR.

3.3.3 Install new starboard rudder gland packing in accordance with the following:

3.3.3.1 Install bottom two ring of new teflon packing, piece 21 of 2.2 coated with Drip Free 2500 sealant.

3.3.3.2 Install two rows new Drip Free 2000 packing.

3.3.3.3 Install one ring of new teflon packing, piece 21 of 2.2 coated with Drip Free 2500 sealant.

3.4 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

(I) (V) "VERIFY OPERATION"

3.5 Verify satisfactory operation of the starboard rudder during dock and sea trials.

3.5.1 Cycle steering gear through five (5) full port to starboard steering evolutions. Verify that the modified grease fitting hoses do not kink or bind. Operate the automatic steering gear grease system to the grease fitting connections. Verify proper operation with no leaks.

3.5.2 Allowable binding and leaking: None.

3.5.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.5 to the SUPERVISOR.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

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1. None.

ITEM NO: 562-12-001

PCN: WD01-Z686

CMP : NONE

PLANNER: PFANTZ  
SULLIVAN

1. SCOPE :

1.1 Title: Port Rudder; repair (DRYDOCK)

## 1.2 Location of Work:

### 1.2.1 Drydock

### 1.2.2 Steering Gear Room (3-53-0-E)

### 1.3 Identification:

1.3.1 Quantity (One): Port Rudder Assembly

## 2. REFERENCES :

## 2.1 Standard Items

## 2.2 562-6737055 Rev J, Rudder Details

### 2.3 561-6737054 Rev F, Steering System Details

## 2.4 S9086-HN-STM-010/CH-244, Propulsion Bearings and Seals

### 3. REQUIREMENTS:

3.1 Disassemble and remove the port rudder assembly in accordance with 2.2 and 2.3.

3.1.1 Remove and dispose of fluids from the rudder assembly.

3.1.2 Clean internal and external surfaces free of foreign matter leaving no residue or injurious effects.

3.1.3 Measure and record sizes and clearances of each wearing part and fit area in accordance with 2.2 and Chapter 5 of 2.4.

(I) "VISUAL INSPECTION"

3.1.4 Accomplish a visual inspection of the port rudder for structural damage, deterioration and preservation failure.



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(I) "WEAR AND DEFECTS"

3.1.5 Inspect each part for wear and defects, using 2.3 and Chapter 5 of 2.4 for accept or reject criteria.

3.1.6 Accomplish the requirements of 009-25 of 2.1, for air test of the rudder. Test pressure shall be 2 PSIG. Maintain test pressure for 15 minutes for temperature stabilization prior to start of test. Hold test pressure for 10 minutes. Allowable drop in pressure: None.

3.1.6.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.1.3 through 3.1.6 to the SUPERVISOR.

3.2 Repair the port rudder assembly in accordance with 2.3 and Chapter 5 of 2.4.

3.2.1 Measure and record rudder stock runout.

3.2.1.1 Straighten the stock to within 0.003 inch total indicator reading.

3.2.2 Stone the stock journal and keyway to remove high spots.

3.2.3 Chase and tap exposed threaded areas.

3.2.4 Accomplish 5 linear feet of weld repair and one square foot of clad welding repair as directed by the SUPERVISOR for the port rudder.

3.2.4.1 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column A, Lines One through 7.

3.2.4.2 Accomplish non-destructive testing in accordance with Line 10.

3.2.5 Accomplish the requirements of 009-25 of 2.1, for air test of the rudder. Test pressure shall be 2 PSIG. Maintain test pressure for 15 minutes for temperature stabilization prior to start of test. Hold test pressure for 10 minutes. Allowable drop in pressure: None.

3.2.5.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.2 and 3.2.5 to the SUPERVISOR.

3.2.6 Fill and drain each rudder with rust preventive compound conforming to MIL-C-16173 Grade I. Install new fill and drain plugs conforming to the specifications of the material list of 2.2.

3.2.6.1 New plugs installed in 3.2.6 shall be installed with thread locking/sealing compound in accordance with 2.2.

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3.3 Reassemble and install the port rudder assembly in accordance with 2.2 and 2.3.

3.3.1 Remove existing, fit, and install new the following parts:

TOTAL QUANTITY REQUIRED	NAME OF PART	PIECE NO.	REF NO.	PART NO.
One	Bearing-Lower Rudder Tube	7f	2.2	
One	Bushing, Bronze	8a	2.2	
One	Key for Rudder Stock	12	2.2	
One	Upper Seal	13	2.2	55118
One	Bearing- Spherical Roller Bearing	16	2.2	SKF-NO. 22230
One	Lower Seal	17	2.2	62941
14 FT	Packing Material	21	2.2	

3.3.1.1 Fit and install new seals, screws, washers, and fasteners for those missing or unserviceable, conforming to the specifications on Material List of 2.2.

3.3.1.2 Install thread locking/sealing compound in accordance with 2.2.

3.3.2 Measure and record final sizes and clearances in accordance with 2.2 and 2.4.

3.3.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.3.2 to the SUPERVISOR.

3.3.3 Install new port rudder gland packing in accordance with the following:

3.3.3.1 Install bottom two ring of new teflon packing, piece 21

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of 2.2 coated with Drip Free 2500 sealant.

3.3.3.2 Install two rows new Drip Free 2000 packing.

3.3.3.3 Install one ring of new teflon packing, piece 21 of 2.2 coated with Drip Free 2500 sealant.

3.4 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

(I) (V) "VERIFY OPERATION"

3.5 Verify satisfactory operation of the port rudder during dock and sea trials.

3.5.1 Cycle steering gear through five (5) full port to starboard steering evolutions. Verify that the modified grease fitting hoses do not kink or bind. Operate the automatic steering gear grease system to the grease fitting connections. Verify proper operation with no leaks.

3.5.2 Allowable binding and leaking: None.

3.5.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.5 to the SUPERVISOR.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 565-11-001  
COAR: 16-003 PCN: EM02-Z689  
CMP: NONE  
PLANNER: PFANTZ  
FLAHERTY

1. SCOPE:

1.1 Title: Starboard Fin Stabilizer; repair (DRYDOCK)

1.2 Location of Work:

1.2.1 Aft Engine Room (3-36-0-E)

1.3 Identification:

1.3.1 Quantity (One): Starboard Fin Stabilizer, Mfr. Vosper  
Thornycroft Ltd., Mfr. ID G1820307A, APL 319990070L

2. REFERENCES:

2.1 Standard Items

2.2 S9566-AB-MMA-010 Rev 01/Chan, Electro-Hydraulic Fin Stabilizer System  
Model MK IV

2.3 565-6737051 Rev G, Fin Stabilization System Seating

2.4 3B566C400 Rev M, Stabilizer System Operational Test

3. REQUIREMENTS:

3.1 Provide the services of a Fleet Support Center Atlantic (FTSCLANT Norfolk VA) technical representative for guidance in disassembly, inspection, reassembly and testing requirements of this Work Item for the starboard fin stabilizer.

3.2 Remove and dispose of fluids to accomplish the requirements of this work item.

3.3 Disassemble and remove the fin stabilizer stock assembly in accordance with 2.2, Paragraph 6-21.1.

3.3.1 Remove fin from stock after removal of stock from ship in accordance with 2.2, Paragraph 6-22.1.

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3.3.1.1 Remove portable fairing plates from hull prior to stock removal in accordance with 2.3.

3.3.2 Clean stock assembly in accordance with 2.2, Paragraph 6-21.2.

3.3.3 Measure and record sizes and clearances of the stock assembly, include sizes, clearances, fits and finishes for wearing parts, bearings surfaces, thrust and journal bearings, seals and packing areas, and physical conditions of parts not specified for renewal in accordance with 2.2, Figure 8-1 and 2.3.

(I) "WEAR AND DEFECTS"

3.3.4 Inspect each part for wear and defects, using 2.2. Paragraph 6-21.2, Figure 8-1 and 2.3 for accept or reject criteria.

3.3.5 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.3.4 to the SUPERVISOR.

3.4 Disassemble and remove the forward and aft hydraulic actuators from the fin stabilizer assembly in accordance with 2.2, Paragraph 6-20.1.

(I) "WEAR AND DEFECTS"

3.4.1 Inspect each actuator rod and eye end bearings, bushings and the actuator tiller and trunnion bolts for wear and defects in accordance with 2.2.

3.4.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.4.1 to the SUPERVISOR.

3.5 Disassemble and remove the fin stabilizer top plate assembly in accordance with 2.2, paragraph 6-23.1, figure 6-15 and 2.3.

(I) "WEAR AND DEFECTS"

3.5.1 Inspect the fin stabilizer top plate assembly for wear and defects in accordance with 2.2 and 2.3.

3.5.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.5.1 to the SUPERVISOR.

3.6 Repair the stock and fin assemblies in accordance with 2.2 and 2.3.

3.6.1 Measure and record each fin stock runout.

3.6.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.6.1 to the SUPERVISOR.

3.6.1.2 Straighten the stock to within 0.003 inch total indicator reading.

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3.6.2 Machine skim cut the fin stock journal diameter in way of each bearing, seal and packing surface to clean up true, removing minimum metal not exceeding minimum shaft diameter.

3.6.3 Accomplish the requirements of 009-09 of 2.1, for weld buildup of each bearing journal, seal and packing surface found to be defective as a result of report in 3.3.5.

3.6.3.1 Procedure shall include machining of fin stock for preparation of journal, seal and packing surface buildup, material to be used for buildup and the amount of material added for buildup and machining of stock to design dimensions, using 2.2 and 2.3 for guidance.

3.6.4 Accomplish buildup of each bearing journal, seal and packing surface to dimensions and finishes shown in 2.3.

3.6.5 Stone each stock journal and keyway to remove high spots.

3.6.6 Chase and tap exposed threaded areas.

3.6.7 Accomplish a visual inspection of the fin for structural damage, deterioration and preservation failure in accordance with 2.3.

3.6.7.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.6.7 with sketches to the SUPERVISOR listing the type, amount and locations of structural damage, deterioration and preservation failure.

3.6.8 Accomplish the requirements of 009-25 of 2.1, for air test of the fin. Test pressure shall be 2 PSIG. Hold test pressure for a minimum of ten minutes. Allowable drop in pressure: None.

3.6.8.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.6.8 with sketches to the SUPERVISOR listing the type, amount and locations of defects.

3.6.9 Accomplish two linear feet of weld repair to the fin.

3.6.9.1 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column A, Lines One through 7.

3.6.9.2 Accomplish nondestructive testing in accordance with Line 10.

3.6.10 Accomplish the requirements of 009-25 of 2.1, for air test of the fin. Test pressure shall be 2 PSIG. Hold test pressure for a minimum of ten minutes. Allowable drop in pressure: None.

3.6.11 Fill the fin with rust preventive compound conforming to MIL-C-

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16173, Grade I and drain. Install new fill and drain plugs conforming to specifications of the Material List of 2.3.

3.7 Reassemble and install the fin stabilizer top plate assembly in accordance with 2.2, paragraph 6-23.2.

3.7.1 Fit and install new fasteners for those missing or unserviceable, conforming to the specifications on material list of 2.2 and 2.3.

3.8 Reassemble and install the fin stabilizer top plate assembly in accordance with 2.2, paragraph 6-23.2.

3.8.1 Remove existing, fit, and install new Government Furnished Material(GFM) provided in 5.4, 5.12, 5.13 and 5.15.

3.8.1.1 Fit and install new seals, O-rings, pins, packing, keys, and fasteners for those missing or unserviceable, conforming to the specifications on Material List of 2.2 and 2.3.

3.8.1.2 Provide material and manufacture, (one) lower bearing bushing (piece 7 of 2.2, Figure 7-13) using Thordon SXL bearing material.

3.8.2 Install lower bearing in accordance with 2.2, Paragraph 6-24.2 prior to reinstalling fin stock assembly.

3.8.3 Install fin assembly on stock, using 2.2, Paragraph 6-22.2 prior to stock installation.

3.8.4 Installation of stock assembly shall be in accordance with 2.2, Paragraph 6-21.3.

3.8.5 Measure and record final sizes and clearances in accordance with 2.2, Figure 8-1 and 2.3.

3.8.6 Install fin stabilizer gland seal packing in accordance with the following:

3.8.6.1 Install two rings of new teflon packing, Piece 6 of 2.2, Figure 7-13 coated with Drip Free 2500 sealant.

3.8.6.2 Install two rings of Drip Free 2000 packing.

3.8.6.3 Install one ring of new teflon packing, Piece 6 of 2.2, Figure 7-13 coated with Drip Free 2500 sealant.

3.8.7 Reinstall portable hull fairing plates in accordance with 2.3.

3.8.7.1 Fit and install new fasteners for those missing or unserviceable, conforming to specifications on Material List of 2.3.

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3.9 Reassemble the fin stabilizer assembly in accordance with 2.3.

3.9.1 Remove existing, fit, and install Government Furnished Material (GFM) provided in 5.1, 5.2, 5.3, 5.5 through 5.11, and 5.14.

3.9.2 Remove existing and install new the following material:

TOTAL QUANTITY REQUIRED	NAME OF PART	REFERENCE NO.	FIGURE DRAWING NO.
One	Loctite 277N Type Primer	2.2.	7-12
One	Loctite 277	2.2.	7-12
One	Loctite 603T Type Primer	2.2.	7-12
One	Loctite 603	2.2.	7-12
One	Methylene Chloride (Degreaser)	2.2.	7-12
One	Loctite 242N Type Primer	2.2.	7-12
One	Loctite 242	2.2.	7-12

3.9.2.1 Loctite Primer "N" and Loctite "277" shall be used on rod eye threads.

3.9.2.2 Loctite primer "T" and Loctite "603" shall be used on trunnion and tiller components with the exception of the trunnion and tiller bottom threads.

3.9.2.3 Loctite primer "N" and Loctite "242" shall be used on trunnion and tiller pin threads.

(I) "CLEARANCES"

3.9.3 Measure and record bearing clearances, using 2.2, Table 8-2 for acceptance criteria.

3.9.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.9.3 to the SUPERVISOR.

3.10 Lubricate the fin stabilizer assembly in accordance with 2.2, Paragraph 3-3.17 and Figure 3-22.

3.11 Lubricate the fin stabilizer assembly in accordance with 2.2, Paragraph 3-3.17 and Figure 3-22.



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(I) "VERIFY WATER FLOW"

3.12 Verify water flow to the lower bearing assembly in accordance with 2.3.

3.13 Accomplish a flush of the fin stabilizer hydraulic systems in accordance with 2.2, paragraph 6-26.

3.14 Fill the fin stabilizer hydraulic systems to the full level with new oil conforming to MIL-H-83282.

(V) (G) "OPERATIONAL TEST"

3.15 Accomplish an operational test of the fin stabilizer system in accordance with 2.4.

3.15.1 Submit one legible copy, in hard copy or electronic media, of completed test data sheets of 2.4, to the SUPERVISOR.

3.16 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 This is a Drydock Item

4.2 The contractor has the option to manufacture parts that are not available from the vendor/manufacturer within a sufficient time to support the availability schedule.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

	TOTAL QUANTITY <u>PROVIDED</u>		NAME OF <u>PART</u>	PIECE <u>NO.</u>	REF <u>NO.</u>	NATIONAL <u>STOCK NO.</u>	PARA <u>NO.</u>
1.	2	EA	Rod End Bearing	3	2.2	None	3.9.1
2.	20	EA	Spherical Bearing	4	2.2	None	3.9.1
3.	4	EA	Circlip	5	2.2	None	3.9.1
4.	One	EA	Spherical Bearing	6	2.2	None	3.8.1
5.	2	EA	Bolt, Trunnion	15	2.2	None	3.9.1
6.	2	EA	Spacer, Bushing	16	2.2	None	3.9
7.	2	EA	Washer	17	2.2	None	3.9.2
8.	2	EA	Bolt, Tiller	18	2.2	None	3.9.1

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9.	2	EA	Special Nut	18	2.2	None	3.9.1
10.	2	EA	M24 Nylon Nut	18	2.2	None	3.9.1
			(in Part)				
11.	2	EA	Spacer Bushing	19	2.2	None	3.9.1
12.	One	EA	Oil Seal	22	2.2	None	3.8.1
13.	One	EA	Oil Seal	23	2.2	None	3.8.1
14.	4	EA	Acetal Plug	None	2.2	None	3.9.1
15.	One	EA	Packing	6	2.2	None	3.8.1

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 565-12-001  
COAR: 16-003 PCN: EM02-Z688  
EM02-Z690  
CMP: NONE  
PLANNER: PFANTZ  
FLAHERTY

1. SCOPE:

1.1 Title: Port Fin Stabilizer; repair (DRYDOCK)

1.2 Location of Work:

1.2.1 Aft Engine Room (3-36-0-E)

1.3 Identification:

1.3.1 Quantity (One): Port Fin Stabilizer, Mfr. Vosper Thornycroft  
Ltd., Mfr. ID G1820307A, APL 319990070L

2. REFERENCES:

2.1 Standard Items

2.2 S9566-AB-MMA-010 Rev 01/Chan, Electro-Hydraulic Fin Stabilizer System  
Model MK IV

2.3 565-6737051 Rev G, Fin Stabilization System Seating

2.4 3B566C400 Rev M, Stabilizer System Operational Test

3. REQUIREMENTS:

3.1 Provide the services of a Fleet Support Center Atlantic (FTSCLANT  
Norfolk VA) technical representative for guidance in disassembly, inspection,  
reassembly and testing requirements of this Work item for the port fin  
stabilizer.

3.2 Remove and dispose of fluids to accomplish the requirements of this work  
item.

3.3 Disassemble and remove the fin stabilizer stock assembly in accordance  
with 2.2, Paragraph 6-21.1.

3.3.1 Remove fin from stock after removal of stock from ship in  
accordance with 2.2, Paragraph 6-22.1.

SHIP: USS HURRICANE (PC-3)

3.3.1.1 Remove portable fairing plates from hull prior to stock removal in accordance with 2.3.

3.3.2 Clean stock assembly in accordance with 2.2, Paragraph 6-21.2.

3.3.3 Measure and record sizes and clearances of the stock assembly, include sizes, clearances, fits and finishes for wearing parts, bearings surfaces, thrust and journal bearings, seals and packing areas, and physical conditions of parts not specified for renewal in accordance with 2.2, Figure 8-1 and 2.3.

(I) "WEAR AND DEFECTS"

3.3.4 Inspect each part for wear and defects, using 2.2, Paragraph 6-21.2, Figure 8-1 and 2.3, for accept or reject criteria.

3.3.5 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.3.4 to the SUPERVISOR.

3.4 Disassemble and remove the forward and aft hydraulic actuators from the fin stabilizer assembly in accordance with 2.2, Paragraph 6-20.1.

(I) "WEAR AND DEFECTS"

3.4.1 Inspect each actuator rod and eye end bearings, bushings and the actuator tiller and trunnion bolts for wear and defects in accordance with 2.2.

3.4.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.4.1 to the SUPERVISOR.

3.5 Disassemble and remove the fin stabilizer top plate assembly in accordance with 2.2, paragraph 6-23.1, figure 6-15 and 2.3.

(I) "WEAR AND DEFECTS"

3.5.1 Inspect the fin stabilizer top plate assembly for wear and defects in accordance with 2.2 and 2.3.

3.5.2 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.5.1 to the SUPERVISOR.

3.6 Repair the stock and fin assemblies in accordance with 2.2 and 2.3.

3.6.1 Measure and record each fin stock runout.

3.6.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.6.1 to the SUPERVISOR.

3.6.1.2 Straighten the stock to within 0.003 inch total indicator reading.

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3.6.2 Machine skim cut the fin stock journal diameter in way of each bearing, seal and packing surface to clean up true, removing minimum metal not exceeding minimum shaft diameter.

3.6.3 Accomplish the requirements of 009-09 of 2.1, for weld buildup of each bearing journal, seal and packing surface found to be defective as a result of report in 3.3.5.

3.6.3.1 Procedure shall include machining of fin stock for preparation of journal, seal and packing surface buildup, material to be used for buildup and the amount of material added for buildup and machining of stock to design dimensions, using 2.2 and 2.3 for guidance.

3.6.4 Accomplish buildup of each bearing journal, seal and packing surface to dimensions and finishes shown in 2.3.

3.6.5 Stone each stock journal and keyway to remove high spots.

3.6.6 Chase and tap exposed threaded areas.

3.6.7 Accomplish a visual inspection of the fin for structural damage, deterioration and preservation failure in accordance with 2.3.

3.6.7.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.6.7 with sketches to the SUPERVISOR listing the type, amount and locations of structural damage, deterioration and preservation failure.

3.6.8 Accomplish the requirements of 009-25 of 2.1, for air test of the fin. Test pressure shall be 2 PSIG. Hold test pressure for a minimum of ten minutes. Allowable drop in pressure: None.

3.6.8.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.6.8 with sketches to the SUPERVISOR listing the type, amount and locations of defects.

3.6.9 Accomplish two linear feet of weld repair to the fin.

3.6.9.1 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column A, Lines One through 7.

3.6.9.2 Accomplish nondestructive testing in accordance with Line 10.

3.6.10 Accomplish the requirements of 009-25 of 2.1, for air test of the fin. Test pressure shall be 2 PSIG. Hold test pressure for a minimum of ten minutes. Allowable drop in pressure: None.

3.6.11 Fill the fin with rust preventive compound conforming to MIL-C-

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16173, Grade I and drain. Install new fill and drain plugs conforming to specifications of the Material List of 2.3.

3.7 Reassemble and install the fin stabilizer top plate assembly in accordance with 2.2 paragraph 6-23.2.

3.7.1 Fit and install new fasteners for those missing or unserviceable, conforming to the specifications on material list of 2.2 and 2.3.

3.8 Reassemble and install the fin stabilizer top plate assembly in accordance with 2.2 paragraph 6-23.2.

3.8.1 Remove existing, fit, and install new Government Furnished Material(GFM) provided in 5.4, 5.12, 5.13 and 5.15.

3.8.1.1 Fit and install new seals, O-rings, pins, packing, keys, and fasteners for those missing or unserviceable, conforming to the specifications on Material List of 2.2 and 2.3.

3.8.1.2 Provide material and manufacture, (one) lower bearing bushing (piece 7 of 2.2, Figure 7-13) using Thordon SXL bearing material.

3.8.2 Install lower bearing in accordance with 2.2, Paragraph 6-24.2 prior to reinstalling fin stock assembly.

3.8.3 Install fin assembly on stock, using 2.2, Paragraph 6-22.2 prior to stock installation.

3.8.4 Installation of stock assembly shall be in accordance with 2.2, Paragraph 6-21.3.

3.8.5 Measure and record final sizes and clearances in accordance with 2.2, Figure 8-1 and 2.3.

3.8.6 Install fin stabilizer gland seal packing in accordance with the following:

3.8.6.1 Install two rings of new teflon packing, Piece 6 of 2.2, Figure 7-13 coated with Drip Free 2500 sealant.

3.8.6.2 Install two rings of Drip Free 2000 packing.

3.8.6.3 Install one ring of new teflon packing, Piece 6 of 2.2, Figure 7-13 coated with Drip Free 2500 sealant.

3.8.7 Reinstall portable hull fairing plates in accordance with 2.3.

3.8.7.1 Fit and install new fasteners for those missing or unserviceable, conforming to specifications on Material List of 2.3.

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3.9 Reassemble the fin stabilizer assembly in accordance with 2.3.

3.9.1 Remove existing, fit, and install Government Furnished Material (GFM) provided in 5.1, 5.2, 5.3, 5.5 through 5.11, and 5.14.

3.9.2 Remove existing and install new the following material:

TOTAL QUANTITY REQUIRED	NAME OF PART	REFERENCE NO.	FIGURE DRAWING NO.
One	Loctite 277N Type Primer	2.2.	7-12
One	Loctite 277	2.2.	7-12
One	Loctite 603T Type Primer	2.2.	7-12
One	Loctite 603	2.2.	7-12
One	Methylene Chloride (Degreaser)	2.2.	7-12
One	Loctite 242N Type Primer	2.2.	7-12
One	Loctite 242	2.2.	7-12

3.9.2.1 Loctite Primer "N" and Loctite "277" shall be used on rod eye threads.

3.9.2.2 Loctite primer "T" and Loctite "603" shall be used on trunnion and tiller components with the exception of the trunnion and tiller bottom threads.

3.9.2.3 Loctite primer "N" and Loctite "242" shall be used on trunnion and tiller pin threads.

(I) "CLEARANCES"

3.9.3 Measure and record bearing clearances, using 2.2, Table 8-2 for acceptance criteria.

3.9.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.9.3 to the SUPERVISOR.

3.10 Lubricate the fin stabilizer assembly in accordance with 2.2, Paragraph 3-3.17 and Figure 3-22.

3.11 Lubricate the fin stabilizer assembly in accordance with 2.2, Paragraph 3-3.17 and Figure 3-22.

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(I) "VERIFY WATER FLOW"

3.12 Verify water flow to the lower bearing assembly in accordance with 2.3.

3.13 Accomplish a flush of the fin stabilizer hydraulic systems in accordance with 2.2, paragraph 6-26.

3.14 Fill the fin stabilizer hydraulic systems to the full level with new oil conforming to MIL-H-83282.

(V) (G) "OPERATIONAL TEST"

3.15 Accomplish an operational test of the fin stabilizer system in accordance with 2.4.

3.15.1 Submit one legible copy, in hard copy or electronic media, of completed test data sheets of 2.4, to the SUPERVISOR.

3.16 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 This is a Drydock Item

4.2 The contractor has the option to manufacture parts that are not available from the vendor/manufacture within a sufficient time to support the availability schedule.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

	TOTAL QUANTITY PROVIDED		NAME OF PART	PIECE NO.	REF NO.	NATIONAL STOCK NO.	PARA NO.
1.	2	EA	Rod End Bearing	3	2.2	None	3.9.1
2.	20	EA	Spherical Bearing	4	2.2	None	3.9.1
3.	4	EA	Circlip	5	2.2	None	3.9.1
4.	One	EA	Spherical Bearing	6	2.2	None	3.8.1
5.	2	EA	Bolt, Trunnion	15	2.2	None	3.9.1
6.	2	EA	Spacer, Bushing	16	2.2	None	3.9
7.	2	EA	Washer	17	2.2	None	3.9.2
8.	2	EA	Bolt, Tiller	18	2.2	None	3.9.1



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9.	2	EA	Special Nut	18	2.2	None	3.9.1
10.	2	EA	M24 Nylon Nut	18	2.2	None	3.9.1
			(in Part)				
11.	2	EA	Spacer Bushing	19	2.2	None	3.9.1
12.	One	EA	Oil Seal	22	2.2	None	3.8.1
13.	One	EA	Oil Seal	23	2.2	None	3.8.1
14.	4	EA	Acetal Plug	None	2.2	None	3.9.1
15.	One	EA	Packing	6	2.2	None	3.8.1

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>581-11-001</u>
COAR:	<u>16-003</u>	PCN:	<u>WD01-Z696</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>FLAHERTY</u> <u>SULLIVAN</u>

1. SCOPE:

1.1 Title: Anchor and Anchor Chain; inspect and preserve

1.2 Location of Work:

1.2.1 Forecastle

1.2.2 Chain Locker (2-5-0-Q)

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 581-6737048 Rev N, Anchor Handling & Details

2.3 T9074-AS-GIB-010/271, Requirements for Nondestructive Testing Methods

2.4 MIL-STD-2035, Nondestructive Testing Acceptance Criteria

2.5 Systems and Specifications, Steel Structures Painting Manual, Volume 2

2.6 S9086-TV-STM-010/CH-581, Naval Ships' Technical Manual Chapter 581

2.7 581-7089957 Rev A, Operation Test & Evaluation for Vertical Anchor Windlass Handling System Pierside Demonstration

3. REQUIREMENTS:

3.1 Remove the bow anchor, anchor chain, chain stopper assembly, bitter end shackle and outboard swivel shots from locations listed in 1.2.1 and 1.2.2. Disassemble the components and using 2.2, mark up existing configuration of anchor chain assembly.

(I) (G) "DISASSEMBLY"

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3.1.1 Existing detachable links shall be disassembled by removing pins in accordance with 2.2. Existing detachable links shall be reinstalled after completion of repairs.

3.2 Accomplish magnetic particle tests on the chain stopper assembly in accordance with 2.3. The accept or reject criteria shall be in accordance with Class 3 of 2.4.

3.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.2 to the SUPERVISOR.

3.3 Near-White blast clean the anchor, anchor chain, shackles and painted surfaces of the detachable links, chain stopper assembly and anchor chain swivels. Accomplish the requirements of Surface Preparation Specification of SSPC-SP-10 of 2.5.

3.3.1 Protect all threaded and machined surfaces during blasting and cleaning operation.

3.3.2 Remove foreign matter resulting from blasting and cleaning.

(I) (G) "SURFACE PREPARATION"

3.4 Apply one coat of primer coating to anchor chain and fitting surfaces cleaned in 3.3, in accordance with 009-32 of 2.1, including Table 5, Line 15, Column B.

3.4.1 If test and inspection of anchor chain system can be accomplished prior to flash rusting the primer coating may be omitted.

3.4.2 Following application of the primer coat and prior to installing final coats of paint accomplish the following:

(I) (G) "ANCHOR SYSTEM INSPECTIONS"

3.4.2.1 Inspect the anchor chain, and chain stopper assembly as detailed in paragraphs 3.4.2.2 through 3.4.2.5 using 2.2 for guidance.

3.4.2.2 Individual shots - arrange on a flat surface and visually inspect for cracks and defects.

3.4.2.3 Inspect the detachable links, swivels, chain stopper assembly and end links for wear and corrosion.

3.4.2.4 Inspect the anchor, anchor shackle and pins, crown pin and shank for even or uneven wear.

3.4.2.5 Power tool clean the mating surfaces of the detachable links and pins. Accomplish the requirements of Surface Preparation Specification SSPC-SP-3 of 2.5.

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(I) (G) "ANCHOR SYSTEM ASSEMBLY AND INSTALLATION"

3.4.3 Install new anchor chain stopper assembly, Piece numbers 31, 81, 82, and 87 of and in accordance with marked up copy of 2.2 as accomplished in 3.1.

3.4.3.1 Coat the mating surfaces of the detachable links, anchor chain swivels and threaded surfaces of the chain stopper assembly with molybdenum disulfide grease conforming to MIL-G-23549.

3.4.3.2 Assemble the detachable links and install new pins and hair pin locks. Lock the pins in place with lead plugs. Install the new pins in accordance with 2.2.

3.4.3.3 After repairs and handling, and prior to installing the final coats of paint, remove rust, grease, the primer coating applied in 3.4 and foreign matter from the painted surfaces of the anchor, anchor chain, outboard swivel shot, chain stopper assembly and associated components.

3.4.4 Accomplish the requirements of 009-32 of 2.1, including Table 5, Line 15, Columns C through G to surfaces cleaned and primed with the exception of the anchor.

3.4.5 Paint shot identifications and mark the anchor chain in accordance with Paragraphs 581-5.3.3. of 2.6.

3.4.6 Accomplish the requirements of 009-32 of 2.1, including Table 5, Line 14, Column B through D for application of an epoxy coating system including finish coats of haze gray to cleaned and primed surfaces of the anchor.

3.5 Assemble and connect disturbed parts and restow the anchor and anchor chain in their original locations in accordance with the marked up copy of 2.2, with the following exceptions:

3.5.1 Install (1) One new bitter end shackle, conforming to RR-C-271, Type IV, A, Class 2, Grade A, on the bitter end of the anchor chain.

3.5.1.1 Lock the bitter end shackle in place using 1/8 inch CRES wire and swage fittings.

3.6 Connect the chain stopper assembly to the pad and chain.

(V) (G) "ANCHOR WINDLASS OPERATIONAL TEST"

3.7 Accomplish an operational test of the vertical anchor windlass handling system in accordance with 2.7.

3.7.1 Submit one legible copy, in hard copy or electronic media, of a completed Test Data Sheets of 2.7 to the SUPERVISOR.

SHIP: USS HURRICANE (PC-3)

3.7.2 Install new CRES test label plate inscribed with test data and test date.

4. NOTES:

4.1 Ship's Force will assist the contractor by operating the anchor windlass.

4.2 Install the anchor system hairpin locks in the outboard swivel shot only.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>581-80-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EXSA-0053</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>PFANTZ</u> <u>SULLIVAN</u>

1. SCOPE:

1.1 Title: ShipAlt PC1-0053D Rev. 02, Replace Anchor Windlass; accomplish

1.2 Location of Work:

1.2.1 Frame 4 - 7, Main Deck and Anchor Windlass Room, 3-0-0-Q

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 581-7089418 Rev H, Arrgt & Structural Mods Incdtl To Anchor Windlass Upgrade

2.3 581-6737048 Rev N, Anchor Handling & Details

2.4 501-7089493 Rev E, Instl Anchor Windlass Room (3-0-0-Q) Vent Modification

2.5 302-7089496 Rev I, Electrical Installation Anchor Windlass

2.6 581-7291745 Rev C, Anchor Windlass brake Remote Operator Handwheel

2.7 DOD-STD-2003 (NAVY), Electric Plant Standards Installation Methods (EPISM)

2.8 810-4714432 Rev I, Piping Hangers, Fabrication, Details and Instl Intsr

2.9 MIL-STD-1310, Shipboard Bonding, Grounding and other Techniques for Electromagnetic Compatibility and Safety

2.10 841-7090046 Rev A, Anchor Padeye-Static Test

2.11 581-7089957 Rev A, Operation Test & Evaluation for Vertical Anchor Windlass Handling System

SHIP: USS HURRICANE (PC-3)

2.12 581-7089958 Rev A, Operation Test & Evaluation for Vertical Handling System At Sea Demonstration

2.13 Systems and Specifications, Steel Structures Painting Manual, Volume 2

2.14 581-7291816 Rev A, Chain Pipe Installation Kit Incid Anchor Windlass Replacement

2.15 Lewmar 1000 VE 460 V Anchor Windlass Installation and Service Manual  
Lewmar Part No. 60000180 Issue E

2.16 SHIPALT PC1-0053D Rev 02, Anchor Windlass Replacement

### 3. REQUIREMENTS:

3.1 Accomplish removals, modifications, relocations, and installations incidental to ShipAlt PC1-0053D Rev. 02, Replace Anchor Windlass in accordance with 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.15 and 2.16.

3.2 Install Government Furnished Material listed in paragraph 5.1 through 5.13.

3.3 Position the chain pipe installation kit provided in 5.14 to the location specified in 2.2 in accordance with 2.14.

3.3.1 Chain pipe installation kit shall be turned over to SUPERVISOR after completion of chain pipe alignment.

3.4 Install new label plates in accordance with 2.2, 2.3, 2.4, 2.5, 2.7 and 2.10.

3.5 Install new hangers to support the piping and prevent vibration in accordance with 2.8.

3.6 Accomplish the requirements of 009-12 of 2.1, Table 2, Lines One through 7 and 10.

3.7 Accomplish insulation resistance test and continuity test of each cable and cable lead for new, rerouted and modified cable.

3.7.1 Nameplates shall confirm to MIL-P-15024.

3.7.1.1 Applicable lead designations shall be marked on the lead markers by hot stamping (Branding). Lead markers are to be made of white insulating sleeving conforming to MIL-I-631, Type F, Grade A, Form U. Install lead markers hot stamped (Branded) with the word and the cable designation of the cable containing the spare conductors on spare conductors. When cables have

SHIP: USS HURRICANE (PC-3)

more than one spare conductor, bind the spare conductors together and identify them with a single lead marker."SPARE"

3.7.1.2 Cable tags (Bands) shall be of soft aluminum and conform to MIL-A-2877 and shall be embossed with the applicable cable designation using numbers and capital letters having minimum height of 3/16 inch and embossed to at least 1/64 inch above the surface. Cable tags and securing strips shall have a thickness of 0.014 to 0.016 inch. Cable tags shall have a minimum width of one-half inch.

3.7.1.3 Bond and ground equipment, using 2.9 for guidance. Grounding straps shall be CRES 316L for topside equipment.

3.8 Accomplish the requirements of 009-32 of 2.1, for new and disturbed surfaces.

(I) (G) "ANCHOR PADEYE STATIC TEST"

3.9 Accomplish an anchor padeye static test of the deck clench in accordance with 2.10.

3.9.1 Submit one legible copy, in hard copy or electronic media, of a report listing 3.9 to the SUPERVISOR.

(V) (G) "OPERATIONAL TEST AND EVALUATION"

3.10 Accomplish an operational test and evaluation of the anchor windlass room (3-0-0-Q) mechanical ventilation system in accordance 2.4, Test Note.

3.10.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.10 to the SUPERVISOR.

(V) (G) "OPERATIONAL TEST AND EVALUATION"

3.11 Accomplish an operational test and evaluation of the vertical anchor windlass handling system in accordance with 2.11.

3.11.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.11 to the SUPERVISOR.

(V) (G) "OPERATIONAL TEST AT SEA"

3.12 Accomplish an operational test and evaluation of the vertical anchor windlass handling system at sea in accordance with 2.12.

3.12.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.12 to the SUPERVISOR.

#### 4. NOTES:

4.1 Accomplish the requirements of this work item in conjunction with Work



SHIP: USS HURRICANE (PC-3)

Items 581-85-001, PC1 Class AER-007E, Rev 01; Anchor Padeye and 167-85-001, PC1 Class AER-0071E, Manhole Replacement INCID to Anchor Windlass; accomplish.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

	TOTAL					
	QUANTITY	NAME OF	PIECE	REF	NATIONAL	PARA
	<u>PROVIDED</u>	<u>PART</u>	<u>NO.</u>	<u>NO.</u>	<u>STOCK NO.</u>	<u>NO.</u>
1.	One EA	Anchor Windlass Unit Assembly	201	None		3.2
2.	One EA	Chain Pipe Assembly	208	None		3.2
3.	One EA	Valve, 2 1/2 Inch Vertical Vent Check	V-1	None		3.2
4.	One EA	Fan, Exhaust	F-3	None		3.2
5.	One EA	Operator, Remote W/Indicator	One	2.6		3.2
6.	One EA	Handwheel	2	2.6		3.2
7.	2 EA	Gear Box	3	2.6		3.2
8.	6 EA	Universal Joint	4	2.6		3.2
9.	One FT	Square Bar	5	2.6		3.2
10.	One EA	Spring Pin	6	2.6		3.2
11.	One FT	Rigid Rod	7	2.6		3.2
12.	10 FT	Rigid Rod	8	2.6		3.2
13.	One FT	Tube	9	2.6		3.2
14.	One EA	Chain Pipe Alignment Kit	-	2.14		3.3

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3)

ITEM NO: 581-85-001

COAR: 16-003

PCN: EXTY-0007

CMP: NONE

PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: PC1 Class AER-0007E, Rev 01, Anchor Padeye; accomplish

1.2 Location of Work:

1.2.1 Anchor Windlass Room (3-0-0-V)

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 581-7086498 Rev B, Anchor Padeye

2.3 581-6737048 Rev N, Anchor Handling & Details

2.4 PC1 CLASS ALTERATION-EQUIVALENT-TO-A-REPAIR, AER-0007E Rev 01, Titled,  
Bitter End Padeye

3. REQUIREMENTS:

3.1 Accomplish removals, modifications and installations incidental to PC1 Class AER-0007E, Rev 01, Anchor Padeye, at location listed in 1.2, in accordance with 2.2, 2.3 and 2.4.

3.1.1 Template all work from ship.

3.1.2 Remove and scrap existing padeye located on overhead, frame 6.

3.1.3 Grind areas flush and smooth in way of removals.

3.2 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column A, Lines One through 7.

3.2.1 Accomplish nondestructive testing in accordance with Line 11.

(I)(G) "STATIC LOAD TEST"

SHIP: USS HURRICANE (PC-3)

3.2.2 Accomplish pull test in accordance with 2.4.

3.2.3 Submit one legible copy, in hard copy or electronic media, of a report listing results of the pull test to the SUPERVISOR.

3.3 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>583-85-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EXTY-0088</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>FLAHERTY</u> <u>SULLIVAN</u>

1. SCOPE:

1.1 Title: PC1 Class AER-0088E, Stern Ramp Side Guide Modifications; accomplish

1.2 Location of Work:

1.2.1 Stern Ramp, Frames 53 - 55, Port and Starboard

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 583-7446539 Rev -, Stern Ramp Side Guide Modifications

2.3 PC-1 CLASS AER 0088E, Stern Ramp Mod-Side Guide Adjusters

2.4 583-5107018 Rev D, Rib Rescue Boat Stow & Handling

2.5 074-6736896 Rev A, Welding Details Handbook

3. REQUIREMENTS:

3.1 Accomplish removals, modifications and installations incidental to PC1 Class AER-0088E, Stern Ramp Side Guide Modifications, at location listed in 1.2 in accordance with 2.2 and 2.3, using 2.4 for guidance.

3.1.1 Chip and grind surfaces flush and smooth in way of removals.

3.1.2 New GOVERNMENT FURNISHED MATERIAL (GFM) pin and hitch listed in 5.1 and 5.2 and shall be furnished by Naval Surface Warfare Center (NSWC) Detachment Norfolk.

3.1.2.1 Point of Contact: Larry Puckette, Naval Surface Warfare Center (NSWC) Detachment Norfolk.

3.1.3 Template all work from ship and equipment as required.

SHIP: USS HURRICANE (PC-3)

3.2 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column D, Lines One through 7 and 2.5.

3.2.1 Accomplish Non-Destructive testing in accordance with line 10.

3.3 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 Work in this item interfaces with Work Item(s) 583-85-003, PC-1 Class AER-0087E, Stern Ramp Lower Bunk Stowage Bracket Installation; accomplish, 583-85-002, PC-1 Class AER-0090E, Stern Ramp Mod -Bunk Support Installation; accomplish and 583-90-001, PC-1 Class ShipAlt PC1-0032K, Combatant Craft Retrieval System; accomplish.

4.2 Government Furnished Material (GFM) listed in 5.1 and 5.2 shall be provided by Naval Surface Warfare Center (NSWC) Detachment Norfolk. POC: Larry Puckette (757) 462-4639.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

	TOTAL					
	QUANTITY	NAME OF	PIECE	REF	NATIONAL	PARA
	<u>PROVIDED</u>	<u>PART</u>	<u>NO.</u>	<u>NO.</u>	<u>STOCK NO.</u>	<u>NO.</u>
1.	8 EA	1/2" Dia.	One	2.2		3.1
2.	8 EA	Hitch Pin	2	2.2		3.1

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>583-85-002</u>
COAR:	<u>16-003</u>	PCN:	<u>EXTY-0090</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>FLAHERTY</u> <u>SULLIVAN</u>

1. SCOPE:

1.1 Title: PC1 Class AER-0090E, Stern Ramp Mod - Bunk Support Installation; accomplish

1.2 Location of Work:

1.2.1 Stern Ramp, Frames 43 - 57, Port and Starboard

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 583-7539585 Rev -, Stern Ramp Modifications

2.3 583-7539586 Rev -, CCRS Handling & Securing Straps Specifications & Details

2.4 PC-1 CLASS AER 0090E, Stern Ramp Mod - Bunk Support

2.5 583-5107018 Rev D, Rib Rescue Boat Stowage & Handling

2.6 074-6736896 Rev A, Welding Details Handbook

3. REQUIREMENTS:

3.1 Accomplish installations incidental to PC1 Class AER-0090E, Stern Ramp Mod Bunk Supports at locations listed in 1.2.1 in accordance with 2.2, through 2.4, using 2.5 for guidance for locations.

3.1.1 New GOVERNMENT FURNISHED MATERIAL (GFM) hitch pin listed in 5.1 shall be furnished by Naval Surface Warfare Center (NSWC) Detachment Norfolk.

3.1.1.1 Point of contact: Larry Puckette, Naval Surface Warfare Center (NSWC) Detachment Norfolk.

3.1.2 Template all work from ship and equipment as required.

SHIP: USS HURRICANE (PC-3)

3.2 Accomplish the requirements of 009-12 of 2.1, including Table 2, Columns A and D, Lines One through 7 and 2.6.

3.2.1 Accomplish Non-Destructive testing in accordance with line 10.

3.3 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 Work in this item interfaces with Work item(s) 583-90-001, ShipAlt PC-1 Class Shipalt PC1-0032K, Stern Gate/Hull Extension; accomplish, 583-85-001, Shipalt PC-1 Class AER-0088E Stern Ramp Side Guide Modifications; accomplish, 583-85-003, PC-1 Class AER-0087 Stern Ramp Lower Bunk Stowage Bracket Installation; accomplish.

4.2 Government Furnished Material (GFM) listed in 5.1 shall be provided by Naval Surface Warfare Center (NSWC) Detachment Norfolk. POC: Larry Puckette (757) 462-4639

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

TOTAL						
QUANTITY		NAME OF	PIECE	REF	NATIONAL	PARA
<u>PROVIDED</u>		<u>PART</u>	<u>NO.</u>	<u>NO.</u>	<u>STOCK NO.</u>	<u>NO.</u>
1. 74 EA		Hitch Pin	18	2.2		3.1

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3)

ITEM NO: 583-85-003

COAR: 16-003

PCN: EXTY-0087

CMP: NONE

PLANNER: FLAHERTY  
SULLIVAN

1. SCOPE:

1.1 Title: PC1 Class AER-0087E, Stern Ramp Lower Bunk Stowage Bracket Installation; accomplish

1.2 Location of Work:

1.2.1 Stern Ramp, Frames 54.5 - 55.5, Port and Starboard

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 583-7446538 Rev -, Stern Ramp Lower Bunk Stowage Bracket Installation

2.3 PC-1 CLASS AER 0087E, Stern ramp Mod - Bunk Tracks

2.4 583-5107018 Rev D, Rib Rescue Boat Stowage & Handling

2.5 074-6736896 Rev A, Welding Details Handbook

3. REQUIREMENTS:

3.1 Accomplish installations incidental to PC1 Class AER-0087E, Stern Ramp Lower Bunk Stowage Brackets at locations listed in 1.2.1 in accordance with 2.2 and 2.3, using 2.4 for guidance for locations.

3.1.1 Note: Piece Numbers One, and 2 on reference 2.2, shall be Contractor Furnished Material (CFM), vice Government Furnished Material (GFM).

3.1.2 Template all work from ship and equipment as required.

3.2 Accomplish the requirements of 009-12 of 2.1, including Table 2, Columns A and D, Lines One through 7 and 2.5.

3.2.1 Accomplish Non-Destructive testing in accordance with line 10.



SHIP: USS HURRICANE (PC-3)

3.3 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 Work in this item interfaces with Work Item(s) 583-85-001, PC-1 Class AER-0088, Stern Ramp Side Guide Modifications; accomplish, 583-90-001, PC-1 Class ShipAlt PC1-0032K, Combatant Craft Retrieval System; accomplish, 583-85-002, PC-1 Class AER-0090E, Stern Ramp Mod-Bunk Support Installation; accomplish.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>583-90-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EXSA-0032</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>FLAHERTY</u> <u>SULLIVAN</u>

1. SCOPE:

1.1 Title: ShipAlt PC1-0032K, Combatant Craft Retrieval System; accomplish

1.2 Location of Work:

1.2.1 Throughout Ship

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 085-5107001 Rev A, PC-1 Class S/A 0032K Docking Plan

2.3 079-5107000 Rev B, Stern Extension Stability Data

2.4 111-5107003 Rev B, Stern Extension External Structure

2.5 115-5107004 Rev B, Stern Extension Internal Structure

2.6 167-5107005 Rev C, Stern Door Details

2.7 186-5107008 Rev B, Stern Extension Auxiliary Misc Floor Plates

2.8 602-5107020 Rev B, Stern Extension Safety Plan

2.9 634-5107022 Rev A, Stern Extension Covering Details

2.10 184-5107007 Rev B, Stern Extension Combat Alignment

2.11 601-5107019 Rev C, Stern Extension Arrangement Details

2.12 713-5107023 Rev D, Stern Extension Lockers & Ammo Storage Details

2.13 167-5107006 Rev A, Stern Extension Passage Details

2.14 611-5107021 Rev C, Stern Extension Outfitting Details

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- 2.15 583-7539713 Rev -, Stern Extension Rib Stowage & Handlg
- 2.16 436-5107014 Rev B, Steering & Misc Elec Sys Mods Stern Extension
- 2.17 320-5107012 Rev E, (Stern Extension) CCRS, Pwr & Ltg Sys Mods
- 2.18 300-5107009 Rev B, Stern Extension Wire Way Mods
- 2.19 520-5107016 Rev B, Stern Extension Piping Details
- 2.20 556-5107017 Rev B, Stern Extension Hydraulic Piping System & Details
- 2.21 501-6737077 Rev I, Pipe System Schematic Firemain Piping
- 2.22 501-6737044 Rev J, Pipe System Schematic Bilge Drainage
- 2.23 501-6737041 Rev J, Piping System Schematics Potable Water Piping
- 2.24 501-6737042 Rev G, Pipe System Schematics Vents and Soundings
- 2.25 501-6737076 Rev I, Pipe System Schematic Sea Water Piping
- 2.26 256-6736972 Rev G, Auxiliary Sea Water Cooling System Arrangement and Details
- 2.27 501-6737058 Rev C, Piping Standards
- 2.28 S6430-AE-TED-010 VOL 1, Piping Devices, Flexible Hose Assemblies
- 2.29 DOD-STD-2003, Electric Plant Installation Methods for Surface Ships and Submarines
- 2.30 MIL-STD-1310, Shipboard Bonding, Grounding and Other Techniques for Electromagnetic Compatibility and Safety
- 2.31 841-7539870 Rev A, CCRS Mod Operational Test
- 2.32 841-7539874 Rev A, CCRS Mod Operational Demonstration
- 2.33 561-7539892 Rev A, Steering Control System Intersystem Control Test Incidental to Shipalt 32K
- 2.34 437-7539898 Rev A, Rudder Angle Indicator System Operational Test Incidental to Shipalt 32K
- 2.35 436-7539895 Rev A, Fire Detection System Operational Test Incidental to Shipalt 32K
- 2.36 331-7539894 Rev A, Lighting Systems Equipment Test Incidental to Shipalt 32K

SHIP: USS HURRICANE (PC-3)

- 2.37 320-7539893 Rev A, Receptacle Circuits Test Incidental to Shipalt 32K
- 2.38 320-7539891 Rev A, Ship's Service Power Distribution System Test Incidental to Shipalt 32K
- 2.39 433-7539890 Rev A, 21MC/1MC Announcing System Operational Test Incidental to Shipalt 32K
- 2.40 426-7539889 Rev A, Autopilot Steering System Test Incidental to Shipalt 32K
- 2.41 432-7539887 Rev A, Sound Powered Telephone Operational Test Incidental to Shipalt 32K
- 2.42 533-7539877 Rev A, Potable Water System Hydrostatic Test & Flush Incidental to Shipalt 32K
- 2.43 533-7539888 Rev A, Potable Water System Operational Tests Incidental to Shipalt 32K
- 2.44 529-7539876 Rev A, Bilge System Hydrostatic Test Incidental to Shipalt 32K
- 2.45 529-7539885 Rev A, Bilge System Operational Tests Incidental to Shipalt 32K
- 2.46 436-7539897 Rev A, Sprinkler System Alarm Operational Test Incidental to Shipalt 32K
- 2.47 256-7539871 Rev A, Auxiliary Sea Water Cooling System Hydrostatic Test Incidental to Shipalt 32K
- 2.48 521-7539875 Rev A, Firemain System Hydrostatic Test Incidental to Shipalt 32K
- 2.49 841-7539866 Rev A, CCRS Mod Tank Test
- 2.50 841-7539867 Rev A, CCRS Mod Compartment Testing
- 2.51 841-7539872 Rev A, CCRS Mod Lifeline and Stanchion Static Load Test
- 2.52 841-7539869 Rev A, CCRS Mod Structural Enhancement Systems Demonstrations
- 2.53 510-7539881 Rev A, Air Conditioning and Heating System Operational Test Incidental to Shipalt 32K
- 2.54 561-7539879 Rev A, Mod Steering System Operational Test Incidental to Shipalt 32K

SHIP: USS HURRICANE (PC-3)

- 2.55 521-7539883 Rev A, Magazine Sprinkler System Test Incidental to Shipalt 32K
- 2.56 841-7539868 Rev A, CCRS Mod Armament Systems Installation Test
- 2.57 841-7539873 Rev A, CCRS Mod Open & Inspect Compartments After Sea Trails
- 2.58 841-7539930 Rev A, Mooring and Towing Fittings Static Test Incidental to Shipalt 32K
- 2.59 841-7539929 Rev A, Padeye Static Load Test Incidental to Shipalt 32K
- 2.60 256-7539932 Rev A, Auxiliary Sea Water Cooling System Operational Test Incidental to Shipalt 32K
- 2.61 556-7539933 Rev A, Hydraulic Piping Hydro & Flush Test Incidental to Shipalt 32K
- 2.62 528-7539931 Rev A, Grey Water System Piping Hydrostatic Test Incidental to Shipalt 32K
- 2.63 841-7540056 Rev A, CCRS Mod At-Sea Systems Demonstration
- 2.64 451-7539949 Rev -, Surface Search Radar Intrasystem Test Incidental to Shipalt 32K
- 2.65 423-7539947 Rev -, GPS Operational Test Incidental to Shipalt 32K
- 2.66 423-7539948 Rev -, Precise Lightweight GPS Receiver AN/PSN-11(V) Operational Test Incidental to Shipalt 32K
- 2.67 311-5107024 Rev A, PC-1 Class S/A 0032K Electrical Load Analysis
- 2.68 PC-1 CLASS S/A 0032K, Combatant Craft Retrieval System
- 2.69 631-5106907 Rev B, Ship's Painting Schedule

3. REQUIREMENTS:

3.1 Accomplish removals, modifications and installations and relocations incidental to S/A PC1-0032K, Combatant Craft Retrieval System (Stern Gate Extension) in accordance with 2.2. through 2.68.

3.1.1 Accomplish the requirements of 009-22 of 2.1, for new, rerouted and modified cables.

3.1.2 Identify cabling and equipment by installing nameplates, cable bands and wire markers in accordance with 2.17. and 2.18.

SHIP: USS HURRICANE (PC-3)

3.1.2.1 Nameplates shall conform to MIL-DTL-15024.

3.1.2.2 Applicable lead designations shall be marked on the lead markers by hot stamping (Branding). Lead markers are to be made of white insulating sleeving conforming to MIL-I-631, Type F, Grade A, Form U. Install lead markers hot stamped (Branded) with the word SPARE and the cable designation of the cable containing the spare conductors on spare conductors. When cables have more than one spare conductor, bind the spare conductors together and identify them with a single lead marker.

3.1.2.3 Cable tags (Bands) shall be of soft aluminum and conform to MIL-A-2877 and shall be embossed with the applicable cable designation using numbers and capital letters having a minimum height of 3/16 inch and embossed to at least 1/64 inch above the surface. Cable tags and securing strips shall have a thickness of 0.14 to 0.16 inch. Cable tags shall have a minimum width of one-half inch.

3.1.3 Bond and ground equipment in accordance with 2.30. Grounding straps shall be CRES 316L for topside equipment.

3.1.3.1 Acceptable criteria for equipment to hull ground via bond or ground strap is one-tenth ohm maximum.

3.2 Remove unused pipe hangers, foundations, clips, label plates, welded buttons and studs.

3.2.1 Chip and grind surfaces flush and smooth in way of removals.

3.3 Restore mating surfaces exposed by piping and fitting removals. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.

3.4 Each new hose assembly shall be in accordance with Section 7, conforming to material of Section 5 of 2.27.

3.4.1 Accomplish the requirements of Section 8 of 2.27.

3.4.2 Install a new CRES identification tag on each flexible hose assembly engraved in accordance with Paragraph 8.5 of 2.27.

3.5 Install new Qty (One) 1 1/2" flanged globe hose valve (V-13 on 2.z), Qty (One) flanged joint assembly located in Joint Identification Table of 2.26 under JT-3 which includes: Qty (One) 1 1/2" sil-brz bronze flange (J-3), Qty (One) flange gasket (M-3), Qty (4) bolts (B-2), Qty (4) nuts (N-2) and Qty (8) washers (W-2), Qty (One) 1 1/2" X 12" piping from elbow to flange (P-3 on 2.z) and Qty (One) 3/4" threaded male hose bibb valve (V-14 on 2.z). These valves, fittings and section of piping will be relocated from Sheet 5 (Section 34-A, Elevation 34-E and Plan-Above Main Deck) of 2.26 to new location (with additional new

SHIP: USS HURRICANE (PC-3)

fittings) on Sheet 8 (View at 59-E and 59-G) of 2.19.

3.6 Accomplish the requirements of 009-12 of 2.1, including Table One, Columns A and B, Lines One through 10.

3.7 Install new hangers and deck penetrations in accordance with 2.27.

3.7.1 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column A, Lines One through 7.

3.8 Clean and flush the new and disturbed sections of vent and sounding tube piping, potable water piping, firemain piping, auxiliary salt water cooling piping, scuppers and deck drain piping, dewatering/ballast piping and hydraulic piping installed in 3.1 with clean fresh water for one hour. The temperature of the water shall not drop below 180 degrees Fahrenheit at the outlet of the flushed pipes.

(V) (G) "HYDROSTATIC TEST"

3.9 Accomplish the requirements of 2.48 for hydrostatic testing the new and disturbed firemain system piping, using clean fresh water.

(V) (G) "HYDROSTATIC TEST"

3.9.1 Accomplish the requirements of 2.48 for hydrostatic testing the new and disturbed auxiliary salt water system piping, using clean fresh water.

(V) (G) "HYDROSTATIC TEST"

3.9.2 Accomplish the requirements of 2.42 for hydrostatic testing the new and disturbed potable water system piping, using clean fresh water.

(V) (G) "HYDROSTATIC TEST"

3.9.3 Accomplish the requirements of 2.44 for hydrostatic testing the new and disturbed dewatering/ballast/bilge drainage system piping, using clean fresh water.

(V) (G) "HYDROSTATIC TEST AND FLUSHING"

3.9.4 Accomplish the requirements of 2.61 for hydrostatic testing and flushing of the new hydraulic system piping.

3.9.4.1 Remove system test fluid upon completion of cleaning/flushing and testing of the hydraulic system piping. Allowable residual fluid: None.

(V) (G) "HYDROSTATIC TEST"

3.9.5 Accomplish the requirements of 2.62 for hydrostatic testing the new and disturbed grey water and sewage system.

(V) (G) "STATIC HEAD TEST"

SHIP: USS HURRICANE (PC-3)

3.9.6 Accomplish a static head test on the new and disturbed deck drains, vents and sounding tubes system piping for a minimum of 4 hours.

3.9.6.1 Allowable leakage at new and disturbed joints: None.

3.9.7 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.9, 3.9.1, 3.9.2, 3.9.3, 3.9.4, 3.9.5 and 3.9.6 to the SUPERVISOR.

(V) (G) "OPERATIONAL TEST"

3.10 Accomplish an operational test of the potable water, sprinkler, and dewatering/ballast/bilge drainage piping systems under system operating pressures and temperatures in accordance with 2.43, 2.45 and 2.46. Allowable leakage at new and disturbed joints: None.

3.10.1 Cycle each valve from both the manual position and the remote operating station, from full closed to full open to full closed a minimum of four times.

3.10.2 Remote operators shall turn freely, with no binding or restriction allowed.

3.11 Chlorinate the new and disturbed potable water piping system.

3.12 Fill the hydraulic oil tank with Qty (60) gallons of MIL-H-83282 premium hydraulic oil (ISO46 or equal).

3.13 Accomplish the requirements of 009-11 of 2.1, for new insulation and lagging.

3.14 Accomplish the requirements of 009-12 of 2.1, including Table 2, Columns A, C and D, Lines One through 7.

(I) (G) "NON-DESTRUCTIVE TESTING"

3.14.1 Accomplish non-destructive testing in accordance with Line 9 at weld connection of new stern section and existing hull structure.

3.14.1.1 Submit one legible copy, in hard copy or electronic media of a report listing the results of 3.14.1 to the SUPERVISOR.

(I) (G) "NON-DESTRUCTIVE TESTING"

3.14.2 Accomplish non-destructive testing in accordance with Line 10 for new stern ramp system including hydraulic operated stern doors.

3.14.2.1 Submit one legible copy, in hard copy or electronic media of a report listing the requirements of 3.14.2 to the SUPERVISOR.

(I) (V) "OPERATIONAL TEST"



SHIP: USS HURRICANE (PC-3)

3.15 Accomplish an operational test of contractor relocated, installed and modified equipment in accordance with 2.16, 2.17, 2.33 through 2.41 and 2.67. Record results.

3.15.1 Submit one legible copy, in hard copy or electronic media of a report listing the results of the requirements of 3.15 to the SUPERVISOR.

(V) (G) "OPERATIONAL TEST/PIER SIDE"

3.16 Accomplish an operational test of the Combat Craft Retrieval System in accordance with 2.31.

3.16.1 Submit one legible copy, in hard copy or electronic media of a report listing the results of 3.16 to the SUPERVISOR.

(V) (G) "OPERATIONAL DEMONSTRATION AT SEA"

3.17 Accomplish an operational demonstration at sea, of the Combat Craft Retrieval System in accordance with 2.32.

3.17.1 Submit one legible copy, in hard copy or electronic media of a report listing the results of 3.17 to the SUPERVISOR.

(V) (G) "TANK TEST"

3.18 Accomplish a tank test in accordance with 2.49.

3.18.1 Submit one legible copy, in hard copy or electronic media of a report listing the results of 3.18 to the SUPERVISOR.

(V) (G) "COMPARTMENT TEST"

3.19 Accomplish a compartment test in accordance with 2.50.

3.19.1 Submit one legible copy, in hard copy or electronic media of a report listing the results of 3.19 to the SUPERVISOR.

(V) (G) "LIFELINE AND STANCHION STATIC LOAD TEST"

3.20 Accomplish a lifeline and stanchion static load test in accordance with 2.51.

3.20.1 Submit one legible copy, in hard copy or electronic media of a report listing the results of 3.20 to the SUPERVISOR.

(V) (G) "STRUCTURAL ENHANCEMENT SYSTEMS DEMONSTRATIONS TEST"

3.21 Accomplish a structural systems demonstrations test in accordance with 2.52.

3.21.1 Submit one legible copy, in hard copy or electronic media of a report listing the results of 3.21 to the SUPERVISOR.

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(V) (G) "AIR CONDITIONING AND HEATING SYSTEM OPERATIONAL TEST"

3.22 Accomplish an air conditioning and heating system operational test in accordance with 2.53.

3.22.1 Submit one legible copy, in hard copy or electronic media of a report listing the results of 3.22 to the SUPERVISOR.

(V) (G) "STEERING SYSTEM OPERATIONAL TEST"

3.23 Accomplish a steering system operational test in accordance with 2.54.

3.23.1 Submit one legible copy, in hard copy or electronic media of a report listing the results of 3.23 to the SUPERVISOR.

(V) (G) "MAGAZINE SPRINKLER SYSTEM TEST"

3.24 Accomplish a magazine sprinkler system test in accordance with 2.55.

3.24.1 Submit one legible copy, in hard copy or electronic media of a report listing the results of 3.24 to the SUPERVISOR.

(V) (G) "ARMAMENT SYSTEMS INSTALLATION TEST"

3.25 Accomplish an armament systems installation test in accordance with 2.59.

3.25.1 Submit one legible copy, in hard copy or electronic media of a report listing the results of 3.25 to the SUPERVISOR.

(V) (G) "OPEN AND INSPECT COMPARTMENTS AFTER SEA TRIALS"

3.26 Accomplish and open and inspect compartments after sea trials in accordance with 2.57.

3.26.1 Submit one legible copy, in hard copy or electronic media of a report listing the results of 3.26 to the SUPERVISOR.

(V) (G) "MOORING AND TOWING FITTINGS STATIC TEST"

3.27 Accomplish a mooring and towing fittings static test in accordance with 2.58.

3.27.1 Submit one legible copy, in hard copy or electronic media of a report listing the results of 3.27 to the SUPERVISOR.

(V) (G) "PADEYE STATIC LOAD TEST"

3.28 Accomplish a padeye static load test in accordance with 2.59.

3.28.1 Submit one legible copy, in hard copy or electronic media of a report listing the results of 3.28 to the SUPERVISOR.

(V) (G) "AUXILIARY SEA WATER COOLING SYSTEM OPERATIONAL TEST"

SHIP: USS HURRICANE (PC-3)

3.29 Accomplish an auxiliary sea water cooling system operational test in accordance with 2.60.

3.29.1 Submit one legible copy, in hard copy or electronic media of a report listing the results of 3.29 to the SUPERVISOR.

(V) (G) "CCRS MOD AT SEA SYSTEMS DEMONSTRATION"

3.30 Accomplish a Combat Craft Retrieval System demonstration in accordance with 2.63.

3.30.1 Submit one legible copy, in hard copy or electronic media of a report listing the results of 3.30 to the SUPERVISOR.

(V) (G) "RADAR, GPS AND RECEIVER OPERATIONAL TEST"

3.31 Accomplish an operational tests on Surface Search Radar, GPS System and the Precise Lightweight GPS Receiver AN/PSN-11(V) in accordance with 2.64, 2.65 and 2.66.

3.31.1 Submit one legible copy, in hard copy or electronic media of Data Sheets of a report listing the results of 3.31 to the SUPERVISOR.

3.32 Accomplish the requirements of 009-32 of 2.1, and 2.69 for surface preparation and preservation of new and disturbed interior surfaces of stern extension.

#### 4. NOTES:

4.1 Work in this item interfaces with Work Item(s) 583-85-003, PC-1 Class AER-0087E, Stern Ramp Lower Bunk Stowage Bracket Installation; accomplish, 583-85-001, PC-1 Class AER-0088E, Stern Ramp Side Guide Modifications; accomplish, and 583-85-002, PC-1 Class AER-0090E, Stern Ramp Mod-Bunk Support Installation; accomplish.

#### 5. GOVERNMENT FURNISHED MATERIAL (GFM):

##### 5.1 LLTM:

1. None.

##### 5.2 PUSH MATERIAL:

1. None.

##### 5.3 KITTED MATERIAL:

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>593-11-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EM01-Z708</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>PFANTZ</u> <u>SULLIVAN</u>

1. SCOPE:

1.1 Title: Sewage (VCHT) System Piping; clean (PCP)

1.2 Location of Work:

1.2.1 Throughout the Ship

1.3 Identification:

1.3.1 Not Applicable.

2. REFERENCES:

2.1 Standard Items

2.2 S9086-T8-STM-010/CH-593 Rev 4, Naval Ship's Technical Manual, Pollution Control

2.3 CDNSWC-TM-63-2000/117, Performance Requirements for the Chemical Cleaning of Sanitary Waste System Piping on Navy Surface Ships by Contractor or Industrial Activity Resources

2.4 MIL-STD-777, Schedule of Piping, Valves, Fittings, and Associated Piping Components for Naval Surface Ships

3. REQUIREMENTS:

3.1 Use the requirements of paragraphs 593-4.2.3 of 2.2 for guidance during accomplishment of this work item.

3.2 Use the requirements of 2.3 and Paragraph 593-4.4.2.2 of 2.2 for guidance for acid cleaning the entire CHT vacuum collection piping system including the piping between the eductor and the tank and the following exceptions:

3.2.1 Utilize a closed loop circulation to remove or dissolve calcium carbonate, cuprous oxide and ferric oxide from inside of the piping system.

3.2.1.1 Ship's equipment shall not be used for cleaning,

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circulating or removal of fluids.

(I) "VISUAL INSPECTION"

3.2.2 Remove valves and clean out plugs and visually inspect the CHT vacuum collection piping system to determine results of the chemical cleaning.

3.2.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.2.2 to the SUPERVISOR.

3.2.2.2 Install each valve and plug removed in 3.2.2 in the original locations using new gaskets and fasteners using Category Group R-4 and paragraphs 4.15 of 2.4 for guidance.

3.2.3 The contractor shall collect and dispose of effluents associated with the acid cleaning.

3.2.4 Effluents containerized in trucks/barges shall be disposed of at a local agency or facility which is approved for treatment and disposal of CHT acid cleaning waste water.

3.3 Provide 5 mandays of labor and 200 dollars of material to accomplish repairs not previously identified in this Work Item, when directed by the SUPERVISOR. Total cost greater or less than above manday and dollar amounts when authorized will be the subject of an equitable adjustment.

3.3.1 Submit one legible copy, in hard copy or electronic media, of a weekly report to document labor and material expenditures to the SUPERVISOR.

3.4 Accomplish the requirements of 009-32 of 2.1, for preparation and preservation of new and disturbed surfaces.

3.5 Install new insulation, lagging, and reusable covers in place of that removed to accomplish the requirements of this work item.

(V) (G) "OPERATIONAL TEST"

3.6 Accomplish an operational test of the CHT vacuum collection piping system under system operating conditions. Allowable leakage: None.

3.6.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.6 to the SUPERVISOR.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

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1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

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ITEM NO: 593-11-002

COAR: 16-003

PCN: EM02-Z703

CMP: NONE

PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: CHT Sewage Tank; inspect and preserve (DRYDOCK)

1.2 Location of Work:

1.2.1 Sewage Holding Tank 3-31-0-W

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 111-6736914 Rev M, Shell Expansion

2.3 117-6736916 Rev J, Transverse Sections

2.4 113-6736917 Rev M, Innerbottom Plating

2.5 115-6736918 Rev K, Longitudinal Girders & Bulkheads

2.6 122-6736919 Rev H, Watertight Bulkheads

2.7 633-7445613 Rev -, Bilge Zinc Installation

3. REQUIREMENTS:

3.1 Accomplish the requirements of 009-25 of 2.1, for preliminary air test of sewage holding tank listed in 1.2. Test pressure shall be 2 PSIG.

3.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing the results of the requirements of 3.1 to the SUPERVISOR.

3.2 Accomplish the requirements of 009-32 of 2.1, including Table 4, Lines 21 through 24, Columns A and B for surface preparation and application of an epoxy primer coating on surfaces of sewage holding tank listed in 1.2.

3.3 Accomplish a visual inspection of the sewage holding tank listed in 1.2 including inspection of manhole cover access plates and bolting hardware,

SHIP: USS HURRICANE (PC-3)

structural plating and stiffeners, pipe hanger brackets, piping for corrosion, damage, deformation, cracks, pitting and structural discrepancies using 2.2 through 2.6 for locations and structural requirements.

3.3.1 Submit one legible copy, in hard copy or electronic media, of a report listing the results of the requirements of 3.3 to the SUPERVISOR, noting specific locations and sizes of discrepancies and recommendations for repairs.

3.4 Provide services of (5) mandays and 1000 dollars material for correction of discrepancies discovered in 3.1 and 3.3.

3.5 Accomplish installation of new zincs in sewage holding tank in accordance with 2.7.

3.5.1 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column A, Lines One through 7.

3.6 Accomplish the requirements of 009-32 of 2.1, including Table 4, Lines 21 through 24, Columns C and D for final application of an epoxy coating system on surfaces of sewage holding tank listed in 1.2.

3.7 Accomplish the requirements of 009-25 of 2.1, for air test of sewage holding tank listed in 1.2. Test pressure shall be 2 PSIG. Hold test pressure for a minimum of ten minutes. Allowable drop in pressure: None.

3.8 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

(I) (G) "FINAL TANK CLOSURE"

3.8.1 Notify SUPERVISOR and Chief Engineer prior to final closing of sewage holding tank.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:



SHIP: USS HURRICANE (PC-3)

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>593-11-003</u>
COAR:	<u>16-003</u>	PCN:	<u>EM01-Z701</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>PFANTZ</u>

1. SCOPE:

1.1 Title: Sewage (VCHT) System Piping; test

1.2 Location of Work:

1.2.1 Throughout the Ship

1.3 Identification:

1.3.1 Not Applicable.

2. REFERENCES:

2.1 Standard Items

2.2 S9086-T8-STM-010/CH-593 Rev 4, Naval Ship's Technical Manual,  
Pollution Control

2.3 4C593C400 Rev D, Marine Sanitation Operational Test

3. REQUIREMENTS:

3.1 Use the requirements of paragraphs 593-4.2.3 of 2.2 for guidance during accomplishment of this work item.

3.2 Accomplish an operational test in accordance with 2.3.

3.3 Provide 5 mandays of labor and 200 dollars of material to accomplish repairs not previously identified in this Work Item, when directed by the SUPERVISOR. Total cost greater or less than above manday and dollar amounts when authorized will be the subject of an equitable adjustment.

3.3.1 Submit one legible copy, in hard copy or electronic media, of a weekly report to document labor and material expenditures to the SUPERVISOR.

3.4 Accomplish the requirements of 009-32 of 2.1, for preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 None.

SHIP: USS HURRICANE (PC-3)

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 593-21-001  
COAR: 16-003 PCN: EM02-Z709  
CMP: NONE  
PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Oily Water Tank; inspect (DRYDOCK)

1.2 Location of Work:

1.2.1 Oily Water Tank 3-36-0-W

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 111-6736914 Rev M, Shell Expansion

2.3 117-6736916 Rev J, Transverse Sections

2.4 113-6736917 Rev M, Innerbottom Plating

2.5 115-6736918 Rev K, Longitudinal Girders & Bulkheads

2.6 122-6736919 Rev H, Watertight Bulkheads

3. REQUIREMENTS:

(I) (G) "TANK INSPECTION"

3.1 Accomplish a visual inspection of the oily water tank listed in 1.2 including inspection and manhole covers and bolting hardware, sounding tubes, structural plating and stiffeners for deformation, damage, corrosion, cracks, pinholes, pitting and structural discrepancies using 2.2. through 2.6 for guidance for locations and structural requirements.

3.1.1 Accomplish the requirements of 009-25 of 2.1 for a preliminary air test of the oily water tank listed in 1.2. Test pressure shall be 2 PSIG, using clean dry air.

3.1.2 Submit one legible copy, in hard copy or electronic media, of a report listing the results of the requirements of 3.1 and 3.1.1 to the

SHIP: USS HURRICANE (PC-3)

SUPERVISOR, noting specific locations and sizes of discrepancies and recommendations for repairs.

3.2 Accomplish the requirements of 009-25 of 2.1 for air test of oily water tank listed in 1.2. Test pressure shall be 2 PSIG, using clean dry air. Hold test pressure for a minimum of ten minutes. Allowable drop in pressure: None.

3.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing the results of the requirements of 3.2 to the SUPERVISOR.

3.3 Accomplish the requirements of 009-32 of 2.1 for cleaning and painting new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3)

ITEM NO: 593-21-002

COAR: 16-003

PCN: EM02-Z715

CMP: NONE

PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Grey Water Tank; inspect (DRYDOCK)

1.2 Location of Work:

1.2.1 Grey Water Tank 3-34-0-W

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 111-6736914 Rev M, Shell Expansion

2.3 117-6736916 Rev J, Transverse Sections

2.4 113-6736917 Rev M, Innerbottom Plating

2.5 115-6736918 Rev K, Longitudinal Girders & Bulkheads

2.6 122-6736919 Rev H, Watertight Bulkheads

3. REQUIREMENTS:

(I) (G) "TANK INSPECTION"

3.1 Accomplish a visual inspection of the grey water tank listed in 1.2 including inspection and manhole covers and bolting hardware, sounding tubes, structural plating and stiffeners for deformation, damage, corrosion, cracks, pinholes, pitting and structural discrepancies using 2.2. through 2.6 for guidance for locations and structural requirements.

3.1.1 Accomplish the requirements of 009-25 of 2.1 for a preliminary air test of the grey water tank listed in 1.2. Test pressure shall be 2 PSIG, using clean dry air.

3.1.2 Submit one legible copy, in hard copy or electronic media, of a report listing the results of the requirements of 3.1 and 3.1.1 to the

SHIP: USS HURRICANE (PC-3)

SUPERVISOR, noting specific locations and sizes of discrepancies and recommendations for repairs.

3.2 Accomplish the requirements of 009-25 of 2.1 for air test of grey water tank listed in 1.2. Test pressure shall be 2 PSIG, using clean dry air. Hold test pressure for a minimum of ten minutes. Allowable drop in pressure: None.

3.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing the results of the requirements of 3.2 to the SUPERVISOR.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3)

ITEM NO: 593-21-003

COAR: 16-003

PCN: EM02-Z716

CMP: NONE

PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Grey Water Tank; inspect (DRYDOCK)

1.2 Location of Work:

1.2.1 Grey Water Tank 3-42-0-W

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 111-6736914 Rev M, Shell Expansion

2.3 117-6736916 Rev J, Transverse Sections

2.4 113-6736917 Rev M, Innerbottom Plating

2.5 115-6736918 Rev K, Longitudinal Girders & Bulkheads

2.6 122-6736919 Rev H, Watertight Bulkheads

3. REQUIREMENTS:

(I) (G) "TANK INSPECTION"

3.1 Accomplish a visual inspection of the grey water tank listed in 1.2 including inspection and manhole covers and bolting hardware, sounding tubes, structural plating and stiffeners for deformation, damage, corrosion, cracks, pinholes, pitting and structural discrepancies using 2.2. through 2.6 for guidance for locations and structural requirements.

3.1.1 Accomplish the requirements of 009-25 of 2.1 for a preliminary air test of the grey water tank listed in 1.2. Test pressure shall be 2 PSIG, using clean dry air.

3.1.2 Submit one legible copy, in hard copy or electronic media, of a report listing the results of the requirements of 3.1 and 3.1.1 to the



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SUPERVISOR, noting specific locations and sizes of discrepancies and recommendations for repairs.

3.2 Accomplish the requirements of 009-25 of 2.1 for air test of grey water tank listed in 1.2. Test pressure shall be 2 PSIG, using clean dry air. Hold test pressure for a minimum of ten minutes. Allowable drop in pressure: None.

3.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing the results of the requirements of 3.2 to the SUPERVISOR.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 593-85-001  
COAR: 16-003 PCN: EXTY-0075  
CMP: NONE  
PLANNER: PFANTZ  
SULLIVAN

1. SCOPE:

1.1 Title: PC1 Class AER 0075E Rev 02, Installation CHT System Valve Replacement;  
accomplish

1.2 Location of Work:

1.2.1 Fwd Engine Room (3-29-0-E), FR 30-31, C/L, Bilge

1.2.2 Main Deck, Frame 30, Stbd

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 S9086-T8-STM-010/Ch-593 Rev 4, Naval Ship's Technical Manual,  
Pollution Control

2.3 593-7292446 Rev B, Installation CHT System Valve Replacement

2.4 593-6737065 Rev G, Sewage Piping Arrangement and Details

2.5 501-6737058 Rev C, Piping Standards

2.6 PC1 CLASS AER 0075E Rev 02, Replacement CHT Valves

3. REQUIREMENTS:

3.1 Accomplish the requirements of Paragraphs 593-4.2.15 through 593-4.2.15.11 of 2.2. during accomplishment of this work item.

3.2 Accomplish removals, modifications and installations incidental to PC1 Class AER 0075E Rev 02, Installation CHT System Valve Replacement in accordance with 2.3, using 2.4, 2.5, and 2.6 for guidance.

3.2.1 Install the new Qty (2) CHT valves listed as GFM in Paragraph 5.1.

SHIP: USS HURRICANE (PC-3)

3.2.2 Accomplish the requirements of 009-12 of 2.1, including Table One, Column A, Lines One through 10.

3.2.3 Restore piping flange mating surfaces exposed by disassembly of piping system. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools. Take precautions to maintain phonographic finish on flanges that have it.

3.2.4 Retain and reuse existing valve supports and label plates for the Quantity (2) new flanged plug valves.

3.3 Clean and flush the new and disturbed sections of CHT piping with hot fresh water for one hour. The temperature of the water shall not drop below 110 degrees Fahrenheit at the outlet of the flushed pipes.

3.4 Accomplish the requirements of 009-71 of 2.1, for hydrostatically testing the new and disturbed sections of CHT piping, in accordance with test note T-1 of 2.3.

(V) (G) "OPERATIONAL TEST"

3.5 Accomplish an operational test of the new and disturbed CHT piping system under system operating pressure, in accordance with test note T-2 of 2.3.

3.5.1 Cycle each newly installed valve from full closed to full open to full closed a minimum of four times. Allowable leakage: None.

3.6 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

TOTAL						
QUANTITY	NAME OF	PIECE	REF	NATIONAL	PARA	
<u>PROVIDED</u>	<u>PART</u>	<u>NO.</u>	<u>NO.</u>	<u>STOCK NO.</u>	<u>NO.</u>	
1. 2 EA	2 1/2 inch Plug Valve	V-1	2.3	4820011644706	3.2.1	

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

SHIP: USS HURRICANE (PC-3)

1. None.

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ITEM NO: 613-11-001

COAR: 16-003

PCN: WD01-P113

CMP: NONE

PLANNER: FLAHERTY

1. SCOPE:

1.1 Title: Flagbag Fingers; install

1.2 Location of Work:

1.2.1 01 Level, Frame 31, Port

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 805-1749050 Rev A, Signal Flag Board Single Banked for No. 8 Flags Assembly

2.3 805-1749051 Rev B, Signal Flag Board Single Banked for No. 8 Flags Detail

3. REQUIREMENTS:

3.1 Install a total of (11) flagbag fingers in the Signal Flagbag at location listed in 1.2, in accordance with 2.2 and 2.3.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3)

5.3 KITTED MATERIAL:

1. None.

ITEM NO: 622-11-001

PCN: EDC1-P112

CMP: NONE

PLANNER: FLAHERTY

1. SCOPE :

1.1 Title: Floor Plate Turnlock Fasteners and Receptacles; install

## 1.2 Location of Work:

### 1.2.1 Forward Engine Room (3-29-0-E)

1.2.2 Aft Engine Room (3-36-0-E)

### 1.2.3 Auxiliary Machinery Room No. 3 (3-49-0-E)

### 1.3 Identification:

1.3.1 Not Applicable

## 2. REFERENCES :

## 2.1 Standard Items

## 2.2 186-6736944 Rev A, Engine Room Floor Plates

### 2.3 186-6736945 Rev B, Aux Misc. Floor Plates

### 3. REQUIREMENTS :

3.1 Accomplish a visual inspection of floor plating system in compartments listed in 1.2 for missing or damaged floor plate turnlock fasteners and floor plate turnlock fastener receptacles. Use 2.2 and 2.3 for guidance for inspection.

3.2 Install a total quantity of three-hundred and fifty (350) floor plate turnlock fasteners and a total of fifty (50) turnlock fastener receptacles using Government Furnished Material (GFM) listed in paragraph 5.1, as a result of 3.1.

3.2.1 Floor plate turnlock fasteners shall be part number 122J-R580-Z3C vice part number 5606800 in 2.2 and 2.3.

3.2.2 Floor plate turnlock fastener receptacles shall be part number SL5X-330 vice part number 5383440 in 2.2 and 2.3.

3.2.3 Turn over to Ships Force, (CHIEF ENGINEER), any and all GFM

SHIP: USS HURRICANE (PC-3)

supplied turnlock fasteners and turnlock fastener receptacles that were not installed.

3.3 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column A, Lines One through 7.

3.4 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

	TOTAL QUANTITY <u>PROVIDED</u>	NAME OF <u>PART</u>	PIECE <u>NO.</u>	REF <u>NO.</u>	NATIONAL <u>STOCK NO.</u>	PARA <u>NO.</u>
1.	350 EA	Turnlock Fastener	None	2.2	None	3.2
2.	50 EA	Receptacle	None	2.2	None	3.2

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.



SHIP: USS HURRICANE (PC-3) ITEM NO: 631-31-001  
COAR: 16-003 PCN: WD01-Z723  
CMP: NONE  
PLANNER: FLAHERTY  
SULLIVAN

1. SCOPE:

1.1 Title: Underwater Hull; clean and preserve (DRYDOCK)

1.2 Location of Work:

1.2.1 Exterior Hull Surfaces from 12 inches Above Upper Boottop Limits to Keel, Port, Starboard, Transom and Bottom Including Rope Guards, Muff Coupling Assemblies, Fin Stabilizers, Sea Scoops, Interior Surfaces of the Sea Chests, Strainers, Baffle Plates, Protective Bars, Struts, Intermediate Struts, Barrels and Rudders

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 S9086-VD-STM-020/CH-631 V2R1, Naval Ships' Technical Manual, Chapter 631

2.3 633-6737111 Rev C, Cathodic Protection and Details

2.4 161-6736942 Rev H, Intermediate Shaft Strut Installation

2.5 161-6736941 Rev H, Main Shaft Strut Installation

3. REQUIREMENTS:

3.1 Accomplish the requirements of 009-32 of 2.1, for the surfaces of the underwater hull with the following exceptions:

3.1.1 Accomplish a high pressure water cleaning for surface preparation of exterior surfaces of the underwater hull, from the keel to 12 inches above the top of the boottop area, port and starboard and stern including muff coupling assemblies, rope guards, fin stabilizers, sea scoops, struts, hull appendages, interior surfaces of the sea chests, strainers, baffle plates and protective

SHIP: USS HURRICANE (PC-3)

bars, in accordance with 2.2. High pressure water blast wash shall be 2400 PSIG. Final surface shall have a mat like finish suitable for recoating without scarring.

3.1.2 Install plywood protective covers over anodes and reference cells of the impressed current cathodic protection system.

3.1.2.1 Plywood covers shall remain in place during the entire drydocking period, except while accomplishing work associated with anodes and references cells. Remove the plywood covers prior to undocking vessel and carefully remove any paint from anodes and references cells.

3.1.3 Install blast resistant protective covers over propellers and propeller shafts. Remove the covers prior to undocking vessel.

3.1.4 Visually inspect the areas of each capastic shield for compliance with the requirements of 2.3 and water intrusion.

3.1.4.1 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.1.4 to the SUPERVISOR.

3.1.5 Remove entire capastic shield on 100% of hull surface for cathodic protection system in accordance with 009-32 of 2.1, including Table One, Line 35, Column A with the following exception, in lieu of using grit, use Garnet or Aluminum Oxide conforming to MIL-A-21380, Type One, as the blast media.

3.1.6 Install new capastic shields in accordance with 2.3 and 009-32 of 2.1, including Table One, Line 35, Column(s) B through E as a result of the requirements of 3.1.5.

3.1.6.1 Apply new capastic smoothly at a thickness of 60 mils minimum for a 10-1/2 foot diameter circle centered, without any holidays. Feather peripheral edge of capastic shield to the hull surface, last 2-3 inches. Mechanically sand to achieve smooth texture. Capastic applied smoothly shall mean finished thickness of material to be 60 to 120 mils with no sharp edges providing good hydrodynamic flow characteristics.

3.1.7 Accomplish the requirements of 009-32 of 2.1, including Table One, Lines 16 through 21, Column A, for surface preparation of the Underwater Hull as listed in 1.2.1, with the exception, in lieu of using grit, use Garnet or Aluminum Oxide conforming to MIL-A-21380, Type One as the blast media.

3.1.7.1 Use caution when cleaning interface surfaces of intermediate and main struts with hull to prevent damage to resin chocking and capastic fairing compounds.

3.1.7.2 Apply capastic fairing compound to (8) eight linear feet of interface surfaces of intermediate and main struts with hull in accordance

SHIP: USS HURRICANE (PC-3)

with 2.4 and 2.5.

3.1.7.3 Cap all mounting holes of anodes with Silicon rubber only, (part number-25) of 2.3.

3.1.8 Apply new primer and antifouling coatings to surfaces cleaned in 3.1.7, in accordance with 009-32 of 2.1, including Table One, Lines 16 through 21, Columns B through G, for a seven year service life hull coating system.

3.1.9 Apply primer and antifouling coatings to capastic compound areas in accordance with 2.3 and 009-32 of 2.1, including Table One, Lines 16 through 21, Column(s) B through E.

3.1.10 Accomplish the requirements of 009-90 of 2.1, to provide the services of Technical Representative, of the manufacturer of the paint coating system being applied, to provide conformance standards for surface preparation and paint system applications during the preparation and application processes of the hull coating systems.

3.1.11 Accomplish the requirements of 009-90 of 2.1, to provide the services of Technical Representative of the manufacturer of the Capastic and Anode assembly (U.S. Filter/Electrocatalytic) to oversee and ensure the anode assembly capastic shield surface preparation, capastic application, and capastic dry coating thickness measurements comply with the conformance standards identified in this work Item.

3.2 Contain and dispose of water, dust, overspray, residue, and other foreign matter resulting from hydro blasting, cleaning, and painting operations and prevent contamination of adjacent ships.

4. NOTES:

4.1 Do not paint the cathodic protection anodes.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3)

ITEM NO: 631-41-001

COAR: 16-003

PCN: WD01-Z725

CMP: NONE

PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Hull Freeboard; blast and preserve (DRYDOCK)

1.2 Location of Work:

1.2.1 Freeboard Surfaces from Deck Edge of Main Deck Down to Upper  
Boottop Limits, Port, Starboard and Transom and Transom Doors

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 631-5106907 Rev B, Ship's Painting Schedule

2.3 631-5107072 Rev A, Camouflage Paint Details

3. REQUIREMENTS:

3.1 Accomplish the requirements of 009-32 of 2.a, including Table 2, Line One, Column A, for abrasive blast surface preparation of freeboard surfaces listed in 1.2.1, with the exception, in lieu of using grit, use garnet or aluminum oxide conforming to MIL-A-21380, Type One as the blast media.

3.1.1 Accomplish the requirements of 009-32 of 2.a, including Table 2, Line One, Columns B through G for application of an epoxy and haze gray coating system, including ship's name and numbers.

3.1.2 Apply a camouflage paint scheme system on freeboard hull surfaces listed in 1.2.1, in accordance with 2.2 and 2.3.

3.2 Contain and dispose of debris, dust, overspray, residue, and other foreign matter resulting from blasting, cleaning, and painting operations and prevent contamination of adjacent ships.

4. NOTES:

SHIP: USS HURRICANE (PC-3)

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>633-21-001</u>
COAR:	<u>16-003</u>	PCN:	<u>EE01-Z726</u> <u>EE01-Z727</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>BENVIE</u> <u>SULLIVAN</u>

1. SCOPE:

1.1 Title: Impressed Current Cathodic Protection; replace reference electrode assemblies (DRYDOCK)

1.2 Location of Work:

1.2.1 Aft Frame 50

1.2.2 Aft Frame 29

1.3 Identification:

1.3.1 Quantity (2): Reference Electrode Assemblies, Mfr. Electrocatalytic Inc, Mfr. ID 35754, Approximate Hull Location Frame: (29 Stbd. and 50 Port)

2. REFERENCES:

2.1 Standard Items

2.2 S9633-B1-MMC-010, Cathodic Protection Instruction Manual

2.3 633-6737111 Rev C, Cathodic Protection and Details

2.4 633-6737121 Rev C, Cathodic Protection System Wiring Diagram

2.5 805-1749225, Cathodic Protection, Typical Installation of Reference Electrodes & Stuffing Tubes

3. REQUIREMENTS:

3.1 Disconnect electrically and mechanically and remove equipment listed in 1.3.1. Record electrical hook-up data, in accordance with 2.4.

3.1.1 Matchmark, identify, and retain packing assemblies in accordance with 2.2.

3.2 Install new reference electrode assemblies. Install retained packing

SHIP: USS HURRICANE (PC-3)

assemblies of 3.1.1 and new CRES fasteners conforming to MIL- S-1222, Type I, Grade 316, in accordance with 2.2, 2.3 and 2.5. Connect equipment using recorded hook-up data and in accordance with 2.4.

(V) (G) "OPERATIONAL TEST"

3.3 Following undocking of ship, accomplish an operational test of the Impressed Current Cathodic Protection System, in accordance with 2.2. Record results.

3.3.1 Submit one legible copy, in hard copy or electronic media, of completed operational test results to the SUPERVISOR.

3.3.2 Upon successful completion of the operational test maintain system in an operational mode for remainder of the availability.

3.4 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 635-11-001  
COAR: 16-003 PCN: EM01-Z729  
CMP: NONE  
PLANNER: FLAHERTY  
SULLIVAN

1. SCOPE:

1.1 Title: Thermal Insulation; remove and install

1.2 Location of Work:

1.2.1 Bosun Storeroom, (2-7-0-A)

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 635-6737102 Rev B, Linings and Insulation Plan and Details

3. REQUIREMENTS:

3.1 Accomplish the removal of a total of (15) square feet of existing damaged thermal insulation from the compartment listed in 1.2, at location detailed in 3.1.1.

3.1.1 Remove a total of (15) square feet at location listed in 1.2 1, transverse bulkhead, frame 7.

3.1.2 Remove an additional total of (75) square feet of existing damaged thermal insulation over and above locations identified in 3.1.1 and 3.1.2. Exact locations shall be designated by the SUPERVISOR.

3.1.3 Remove studs exposed by insulation removals.

3.1.3.1 Chip and grind surfaces flush and smooth in way of removals.

3.2 Accomplish the requirements of 009-32 of 2.1, including Table 3, Line 8, Column A, for surface preparation of new studs and disturbed surfaces exposed by insulation removal.



SHIP: USS HURRICANE (PC-3)

3.3 Install a total of (90) square feet of new thermal insulation where removed in 3.1 in accordance with 2.2.

3.3.1 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column D, Lines one through 7.

3.4 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3)

ITEM NO: 635-11-002

COAR: 16-003

PCN: WD01-P217

CMP: NONE

PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Thermal Insulation; remove and install

1.2 Location of Work:

1.2.1 Forward Head (2-20-1-L)

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 635-6737102 Rev B, Linings and Insulation Plan and Details

3. REQUIREMENTS:

3.1 Accomplish the removal of a total of (160) square feet of existing damaged thermal insulation from the compartment listed in 1.2.1 located as follows:

3.1.1 At Starboard shell plate between frames 20 and 25.

3.1.2 Remove studs exposed by insulation removals.

3.1.2.1 Chip and grind surfaces flush and smooth in way of removals.

3.2 Accomplish a visual inspection of areas exposed by insulation removal and adjacent areas for evidence of water leakage in space.

3.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.2 to the SUPERVISOR.

3.3 Accomplish the requirements of 009-32 of 2.1, including Table 3, Line 4, Column A, for surface preparation for new studs and surfaces exposed by insulation removal.

3.4 Install a total of (160) square feet of new thermal insulation including

SHIP: USS HURRICANE (PC-3)

hardware where removed in 3.1 in accordance with 2.2.

3.4.1 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column D, Lines one through 7.

3.5 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of surfaces cleaned in 3.2.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3)

ITEM NO: 637-11-001

COAR: 16-003

PCN: WD01-P202

CMP: NONE

PLANNER: FLAHERTY

1. SCOPE:

1.1 Title: Sheathing; repair

1.2 Location of Work:

1.2.1 Electronics Room, (1-14-0-C)

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 621-6737094 Rev B, Joiner Work Details Superstructure

3. REQUIREMENTS:

3.1 Install where missing or damaged, QTY twenty, (20), rivets on aft side of joiner bulkhead, frame 14 at location listed in 1.2.1. Accomplish in accordance with 2.2.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL(GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3)

SHIP: USS HURRICANE (PC-3) ITEM NO: 640-21-001  
COAR: 16-003 PCN: WD01-P214  
CMP: NONE  
PLANNER: FLAHERTY

1. SCOPE:

1.1 Title: Mess Deck Seat Cushions; install

1.2 Location of Work:

1.2.1 Galley and Mess Area (2-20-0-Q)

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 651-6737100 Rev C, Galley / Mess Equipment

2.3 640-6737125 Rev C, Miscellaneous Furnishings

3. REQUIREMENTS:

3.1 Remove existing and install new galley seat cushions and back rest cushions at location listed in 1.2.1. Accomplish in accordance with 2.2 and 2.3.

3.1.1 Use existing seat and back rest cushions as templates for new.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

KITTED MATERIAL:

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5.3

1. None.

SHIP: USS HURRICANE (PC-3)

ITEM NO: 660-11-001

COAR: 16-003

PCN: WD01-P212

CMP: NONE

PLANNER: PFANTZ  
SULLIVAN

1. SCOPE:

1.1 Title: Zone 8 Air Handling Unit Diffuser Vent; replace

1.2 Location of Work:

1.2.1 Passage (2-10-0-L)

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 514-6737079 Rev E, HVAC Systems and Details

3. REQUIREMENTS:

3.1 Remove existing damaged Zone 8 air handling unit diffuser vent and replace it with new in accordance with 2.2.

3.2 Accomplish the requirements of 009-32 of 2.1, for surface preparation and preservation of new and disturbed surfaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.



SHIP: USS HURRICANE (PC-3)

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 857-11-001  
COAR: 16-003 PCN: EXSY-Z731  
CMP: NONE  
PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Temporary Duty Section Berthing Off-Ship; provide

1.2 Location of Work:

1.2.1 Not Applicable

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 None

3. REQUIREMENTS:

3.1 Provide like new off-ship berthing facilities for the duty section commencing on contract start date and lasting entire contract period on a seven-day-a-week basis. Usage of a 12 foot X 60 foot trailer with the requirements of 3.2 through 3.7 incorporated is acceptable.

3.1.1 The duty section will consist of 8 men. 1- Executive Officer 1- Officer 4- Chief Petty Officers 2- Enlisted

3.2 Provide like new facilities in accordance with the local building codes, sanitary, and current fire safety regulations. Adequate fire protection apparatus shall be provided inside the facilities and shall include smoke alarms and sprinkler systems. Provide a description of berthing barracks fire protection systems to the SUPERVISOR prior to start of availability.

3.2.1 Exterior doors and windows immediately accessible to ground level shall be lockable. Fire exits shall be in accordance with local fire codes.

3.3 The like new berthing facility shall be in close proximity to the ship, and shall be equipped with lighting, refrigerator, microwave unit, refrigerated drinking fountain with bottled water (maintain water supply as required), telephone communications with the ship, satellite television service (hook-up), heating and cooling, bunks, lavatories, water closets, urinals and showers as

SHIP: USS HURRICANE (PC-3)

follows:

3.3.1 Lavatories, one for every eight persons.

3.3.2 Water closets, one for every twenty males.

3.3.3 Showers, one for every sixteen persons.

3.3.4 Urinals, one for every forty males.

3.3.5 A bunk for each person. Bunks may be tiered.

3.4 Provide a like new individual locker suitable for each person for one day of clothing and toilet articles storage. Provide blankets, mattresses, pillows and, on a daily basis, clean linen consisting of sheets, pillow cases, towels and wash cloths.

3.5 Provide a fire alarm which can be activated from the shipboard watch station to be used to alert duty section fire party.

3.6 Facility must be in like new condition and subject to acceptance inspection to be accomplished by SUPERVISOR and Ship's Force representative.

3.7 Facility will be kept clean by Ship's Force and maintained by contractor.

4. NOTES:

4.1 A trailer or trailers or a barge that meet the requirements of this work item will be acceptable.

4.2 Ship will provide its own television set.

4.3 Satellite television service is defined as "The Basic" or minimum service provided by the local satellite company.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3) ITEM NO: 980-11-001  
COAR: 16-003 PCN: EXSY-Z736  
CMP: NONE  
PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Ship's Force Assistance; accomplish

1.2 Location of Work:

1.2.1 Throughout the Ship

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 None

3. REQUIREMENTS:

3.1 Provide 18 mandays of industrial assistance and 750 dollars of material for use as authorized by the SUPERVISOR for accomplishment of work beyond the capabilities of Ship's Force.

3.1.1 This assistance shall be limited to services, labor or special tools and equipment.

3.1.2 Material shall be those minor consumable materials required in support of the services provided in 3.1.1.

3.2 The contractor shall provide the SUPERVISOR with an estimate of labor hours and material required to accomplish each individual Assist Ship's Force Work Request. Upon agreement by the SUPERVISOR, Commanding Officer and Contractor, parties shall sign the Assist Ship's Force Work Request Form. Upon approval the Contractor shall be advised by the SUPERVISOR to commence work.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

SHIP: USS HURRICANE (PC-3)

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3)

ITEM NO: 982-11-001

COAR: 16-003

PCN: EXSY-Z737

CMP: NONE

PLANNER: FLAHERTY

1. SCOPE:

1.1 Title: Light-Off Assessment (LOA/LOE) Support for Diesel Propulsion System; provide

1.2 Location of Work:

1.2.1 Throughout the Ship

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

3. REQUIREMENTS:

3.1 Complete all scheduled work throughout the ship by "Production Completion Date". Repairs, installations, testing, and adjustments support the main propulsion system directly, indirectly, or for emergencies shall also be completed.

3.1.1 The term complete is defined to mean the accomplishment of contractor responsible work that is possible without lighting off the main propulsion diesel engines and ship service diesel generators until after a successful Light-Off Assessment.

3.1.2 The following work shall be complete:

3.1.2.1 Repair and installation of machinery, equipment, Blowers, piping systems, gages, thermometers, meters, operating instructions and warning plates, protective guards, flange shields, remote shutdown devices, strainer shields, valves and handwheels, insulation and lagging, check valves, steam traps and orifices, regulators and reducing valves, remote operating gears and pull cables, valve reach rods, pipe hangers and braces, valve locking devices, valve position indicators, indicators, gage lines, label plates, relief valves and hand lifting levers, boiler safety valves and easing gear, sight glasses and guards, fuel strainers, soot blowers, boiler casing, fire fighting

SHIP: USS HURRICANE (PC-3)

systems and equipment, handrails, ladders, access doors and scuttles, ventilation systems, supply and exhaust vent screens, lighting systems (incandescent, fluorescent, and emergency battle lanterns), electric cables and runs, cable straps, cable packing, cable tags, alarm systems, ground straps, flex hoses, resilient mounts, safety devices, stenciling, interior communication(s) systems, tachometers, and resiliently-mounted pipe hangers.

3.1.2.2 Calibration of gages, thermometers, tachometers, pyrometers, and meters.

3.1.2.3 Cold setting of relief valves, diesel engine governors, overspeed trips, piping spring hangers, regulators, and reducing valves, high temperatures alarms and switches, high and low pressure control switches, low lube oil pressure alarms.

3.1.2.4 Painting

3.1.2.5 Filling of lube oil, fuel oil and feedwater tanks.

3.1.2.6 Bilges shall be clean and gas free, "Safe for Workers".

3.1.3 Complete portions of required test procedures that can be completed without diesel engine light-off.

3.2 Correct contractor responsible preliminary LOA discrepancies prior to the turnover of engineering spaces to Ship's force.

3.2.1 Provide 7 mandays of labor and 500 dollars of material to correct government responsible deficiencies that are discovered during the LOA/LOE inspection and equipment testing. Total cost greater or less than above manday and dollar amounts will be the subject of an equitable adjustment.

3.2.1.1 Submit one legible copy, in hard copy or electronic media, of a weekly report to document labor and material expenditures to the SUPERVISOR.

3.2.2 Prior to start of work, the contractor and the SUPERVISOR shall discuss and agree on the nature and scope of each task.

3.2.2.1 Submit one legible copy, in hard copy or electronic media, of a weekly report on the status of completion of preliminary LOA/LOE discrepancies to the SUPERVISOR. Notify the SUPERVISOR immediately upon determination of any discrepancies that cannot be corrected prior to the scheduled LOA/LOE, giving the reason and expected completion date.

3.2.3 Provide a dedicated three (3) day time frame after main space turnover and plant start up/testing for ship's force to remove fire hazards, correct safety deficiencies, perform minor housecleaning chores and complete

SHIP: USS HURRICANE (PC-3)

light-off examination in machinery spaces.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.



SHIP: USS HURRICANE (PC-3)

ITEM NO: 982-21-001

COAR: 16-003

PCN: EXSY-Z738

CMP: NONE

PLANNER: FLAHERTY

1. SCOPE:

1.1 Title: LOA/LOE Inspection Discrepancy Correction Assistance; provide

1.2 Location of Work:

1.2.1 Throughout the Ship

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

3. REQUIREMENTS:

3.1 Provide 12 mandays of labor and 700 dollars of material to correct Government responsible deficiencies that are discovered during the Pre-LOA/LOE inspection. Total cost greater or less than above manday and dollar amounts, will be the subject of an equitable adjustment.

3.1.1 Submit one legible copy, in hard copy or electronic media, of a weekly report to document labor and material expenditures to the SUPERVISOR.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

SHIP: USS HURRICANE (PC-3)

1. None.

SHIP: USS HURRICANE (PC-3)

ITEM NO: 982-31-001

COAR: 16-003

PCN: EXSY-Z739

CMP: NONE

PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Dock Trial and Fast Cruise; accomplish

1.2 Location of Work:

1.2.1 Throughout Ship

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

3. REQUIREMENTS:

3.1 Schedule and accomplish a joint conference (Contractor, Ship's Force, and the SUPERVISOR), and prepare a dock trial test agenda listing tests and final adjustments for equipment and systems installed or repaired by the contractor in accordance with the job order. The agenda shall include as a minimum: sequence of events, tests to be accomplished, and data to be recorded.

3.1.1 Submit one legible copy, in hard copy or electronic media of agenda five days prior to scheduled dock trial to the SUPERVISOR.

3.2 Provide qualified mechanics and manufacturer's representatives and accomplish dock trial in accordance with the approved test agenda. Make corrections and adjustments to ensure satisfactory operation of equipment or systems, and measure and record test data.

3.2.1 Submit one legible copy, in hard copy or electronic media of a report listing equipment test, test data recorded, and deficiencies observed to the SUPERVISOR.

3.3 Provide rigging and crane service and assist Ship's Force to install additional mooring lines to ensure safety and preclude damage to the ship during dock trials and fast cruise.

3.4 Remove and reinstall temporary services, welding leads, and hoses

SHIP: USS HURRICANE (PC-3)

necessary to accomplish dock trials and fast cruise.

4. NOTES:

4.1 The Commanding Officer of the ship will exercise control of the ship during Dock Trial and Fast Cruise. Operation of ship's equipment and systems will be accomplished by Ship's Force.

4.2 Upon completion of dock trial deficiency correction period, the ship will be available to the Commanding Officer for a one day period prior to sea trials to conduct Crew Training and to ensure that he has satisfactorily trained personnel for initial At Sea operations. There will be no shipboard work in progress or contractor personnel on board during the Fast Cruise/Crew Certification period.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

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ITEM NO: 982-31-002

COAR: 16-003

PCN: EXSY-P300

CMP: NONE

PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Sea Trials; accomplish

1.2 Location of Work:

1.2.1 Throughout Ship

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

3. REQUIREMENTS:

3.1 Schedule and conduct a joint conference (Contractor, Ship's Force, and the SUPERVISOR), and prepare a sea trial test agenda listing tests and final adjustments for equipment and systems installed or repaired by the contractor in accordance with the job order. The agenda shall include as a minimum: sequence of events, tests to be accomplished, and data to be recorded.

3.1.1 Submit one legible copy, in hard copy or electronic media of agenda five days prior to scheduled sea trial to the SUPERVISOR for review.

3.2 Remove debris, tools, equipment, and rigging material not required for tests prior to sea trial.

3.3 Provide qualified mechanic's and manufacturer's representatives and accomplish a sea trial for One (1) day/maximum 8 hours of underway time in accordance with the approved test agenda. Make corrections, final adjustments, and record test data.

3.3.1 Submit one legible copy, in hard copy or electronic media of a report listing full names, security clearances, home addresses, home telephone numbers (if available), and names of kin of personnel scheduled to ride the ship during sea trials to the SUPERVISOR.

3.3.1.1 The list shall be turned in ten days prior to the

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established sea trial date.

3.3.2 Submit one legible copy, in hard copy or electronic media of completed test memoranda to the SUPERVISOR.

3.4 Remove and reinstall temporary services, welding leads, and hoses necessary to accomplish sea trials.

4. NOTES:

4.1 The Commanding Officer of the ship will provide a sea trial evolution agenda and exercise actual control over navigation and operation of the ship, its machinery, and its equipment.

4.2 Operational test, test memos, or test procedures identified by individual work items in the job order shall be integrated into the sea trial agenda as applicable.

4.3 Sea trials will not be scheduled for accomplishment on weekends or Federal holidays.

4.4 Scheduling for the sea trial test agenda shall include HM&E covered by individual work items.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

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ITEM NO: 982-41-001

COAR: 16-003

PCN: EXSY-Z740

CMP: NONE

PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Dock Trial and Sea Trial Discrepancy Correction; accomplish

1.2 Location of Work:

1.2.1 Throughout Ship

1.3 Identification:

1.3.1 Not Applicable.

2. REFERENCES:

2.1 None.

3. REQUIREMENTS:

3.1 Provide services of 10 mandays and 300 dollars material and correct minor Government deficiencies encountered during dock trials and sea trials as authorized by the SUPERVISOR.

4. NOTES:

4.1 Any work undertaken shall not delay ship's completion unless sanctioned by the Type Commander.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

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ITEM NO: 991-12-001

COAR: 16-003

PCN: EXSY-Z742

CMP: NONE

PLANNER: SULLIVAN  
MCCUNE

1. SCOPE:

1.1 Title: Temporary Staging for Ship's Force Use; provide

1.2 Location of Work:

1.2.1 Mast

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 29 CFR Part 1926, OSHA

3. REQUIREMENTS:

3.1 Provide and install a steel tube and clamp type staging in accordance with 2.1 in the locations(s) listed in 1.2, with sufficient levels and projections to safely reach and perform such tasks as scaling and painting of entire structures for the entire contract period for Ship's Force use and the following:

3.1.1 Install the staging within the first five days of the availability.

3.1.2 The staging on the masts shall be installed so that personnel can walk around the entire mast and mast platforms at each staging level. The staging levels shall not be spaced over 7 feet apart. Staging levels shall be installed approximately 4 feet under the yardarm and mast platforms.

3.1.3 Planking shall be secured (cleated) to preclude shifting or coming loose during high winds.

3.1.4 Staging shall be capable of sustaining a load of 300 pounds at any point or level of the staging.

3.1.5 Ends of tubing resting on structure and transmitting weight of the staging shall terminate on framing immediately below and have 10.2 pound sole



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plates to preclude damage to structure.

3.1.6 Provide 8 mandays of labor and 250 dollars of material to modify the staging as directed by the SUPERVISOR to facilitate Ship's Force (SF) work. Total cost greater or less than above manday and dollar amounts when authorized will be the subject of an equitable adjustment.

3.1.7 Erect shrouds/curtains to contain all environmental pollutants generated during the Ship's Force work. Shrouds/curtains shall envelope entire temporary staging.

3.2 Upon completion of work and when directed by the SUPERVISOR remove staging including shrouds and curtains.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

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ITEM NO: 992-11-001

COAR: 16-003

PCN: EXSY-Z748

CMP: NONE

PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: SUPSHIP Office Space Without Computers (in plant/downriver availabilities); provide

1.2 Location of Work:

1.2.1 Not Applicable

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 None

3. REQUIREMENTS:

3.1 Provide a SUPSHIP office facility and furnishings in like new condition including the following requirements: Usage of a 12 foot X 60 foot trailer incorporating the requirements of 3.1.1 through 3.1.19 is acceptable.

3.1.1 The SUPSHIP office facility and furnishings shall be in effect from fourteen calendar days prior to the contract performance period to thirty days after the contract performance period. In those availabilities that have a Pre and/or Post RAV (accomplished by the same contractor) the requirements of this Work Item shall be in effect from seven calendar days prior to the Pre RAV until thirty days after the Post RAV.

3.1.1.1 For in plant availabilities the office facility shall be within 1/4 mile of the vessel for repair/overhaul availabilities and within 1/2 mile for new construction projects.

3.1.1.2 For downriver availabilities location of the office facility shall be designated by the SUPERVISOR.

3.1.1.3 Trailers shall be secured and anchored to prevent to prevent movement during usage.

3.1.2 The office facility must be lockable, secure and safe for

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personnel and equipment.

3.1.3 Accomplish the following using Attachment A for criteria.

3.1.3.1 Attachment A provides the number of parking spaces, work stations, file cabinets, and bookcases to be provided to each project team. A work station consists of a lockable double pedestal desk with a center drawer, phone, trash can, and desk chair. Sufficient telephone lines shall be provided so that no more than two telephones are connected to any one telephone line. Telephones shall be capable of pick up and transfer from each work station. File cabinets shall be four drawers high and lockable. Bookcases must be at least four shelves high and 48 inches wide.

3.1.4 A work station shall encompass a minimum of 60 square feet for each of the following SUPSHIP Team representatives:

3.1.4.1 Ship Building Specialist (Surveyor)

3.1.4.2 Quality Assurance Specialist

3.1.4.3 Expanded Planning Yard Rep.

3.1.4.4 GS-11s and below

3.1.5 A work station shall encompass a minimum of 80 square feet for each of the following SUPSHIP representatives:

3.1.5.1 Project Manager

3.1.5.2 Code 290 Representative

3.1.5.3 Code 400 Representative

3.1.5.4 Port Engineer

3.1.5.5 GS-12s and above

3.1.6 Provide a copier with paper, toner, automatic feed and the capability to collate up to 15 copies.

3.1.6.1 Sizes of paper for the copier shall be 8 1/2 inches by 11 inches and 11 inches by 17 inches.

3.1.7 Provide a FAX machine with a dedicated phone line and paper.

3.1.8 Provide a Network Infrastructure.

3.1.8.1 Provide a standard based IP connection utilizing ethernet (IEEE 802.3) framing. Connection throughout to be 10MB minimum to the existing regional maintenance metropolitan area network (MAN). The government

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will provide addressing and routing service.

3.1.8.2 Provide a server station consisting of a computer table for network server, monitor, printer, and chair.

3.1.8.3 Provide unshielded Twisted Pair Cable-24AWG (100 BASE T Compliant) Cat or level 5 (as required).

3.1.8.4 RJ 45 Connectors (50 each)

3.1.8.5 Install cabling listed in 3.1.8.3 from File Server Station to each Work Station identified using Attachment A for locations.

3.1.8.6 Install connectors listed in 3.1.8.4 on cables installed in 3.1.8.5 and test cables to certify Cat 5 installation capable of 100Mb/s transmission.

3.1.8.7 The government will provide the server, workstation PC's, printer and network concentrator.

3.1.9 When requested by the SUPERVISOR provide full size copies of drawing (s), CD (s) or from aperture card(s). The contractor shall provide the copies within 24 hours (one calender day) after each request is made. For bidding purposes the contractor shall provide 200 copies (sheets).

3.1.10 When 2 or more availability teams are located in the same office area at the contractor's facility, the copier, aperture card reader and FAX machine may be shared, provided the machines are of sufficient capacity.

3.1.11 One electric, self contained, refrigerated drinking fountain.

3.1.12 The facility shall meet Federal, State, and Local building and environmental requirements, i.e., lighting, ventilation, heating, cooling, safety, etc. In addition, two fully charged 15 pound CO2 wall-mounted fire extinguishers shall be provided in convenient locations.

3.1.12.1 Heating and cooling temperature shall be maintained between 70 and 80 degrees Fahrenheit.

3.1.12.2 The facility shall have a minimum of one hundred amp service.

3.1.12.3 Lighting throughout the facility shall be a minimum of 50 foot candles.

3.1.12.4 One 115 volt shock resistant, double electrical receptacle for each work station.

3.1.13 The offices shall be cleaned on a daily basis in order to

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maintain a clean and sanitary work environment. Cleaning shall be done within normal working hours (0700-1530 Monday through Friday) to enable the workplace to be locked and secured during nonworking hours.

3.1.14 Facilities shall include a conference area to accommodate a minimum of 15 people. This can be satisfied by having reasonable access to contractor facilities.

3.1.15 Restrooms for men and women shall be separate and include the following minimum toilet fixtures:

Number of men/women	Water Closets	Lavatories
1-15	1	1
16-35	2	2
36-55	3	3
56-60	4	3

3.1.15.1 In mens facilities, urinals may be substituted for one third of the water closets specified.

3.1.15.2 The minimum size of each restroom is 20 square feet.

3.1.16 Restrooms shall be cleaned on a daily basis and supplied with soap, paper and hand towels. Cleaning shall be done within normal working hours (0700-1530 Monday through Friday) to enable the workplace to be locked and secured during non-working hours.

3.1.17 For in plant availabilities SUPSHIP parking spaces shall be located adjacent to the SUPSHIP office, well lighted and spaced to adequately accommodate the number of spaces listed in Attachment A. A reserved parking space will be designated for each of the SUPSHIP "Senior on site representatives" as designated by SUPSHIP for that availability. A sign or placard shall be posted at the space that reads "SUPSHIP SENIOR ON SITE REPRESENTATIVE."

3.1.18 For availabilities downriver the following services shall be provided:

3.1.18.1 Provide, install and maintain a self contained sewage tank for each restroom. The sewage tank shall be emptied daily.

3.1.18.2 Services for office space (power, water and telephone service) will be provided by the Naval Base. The contractor shall reimburse the Naval Base for services. For bidding purposes bids shall be based on services costing 400 dollars a day.

3.1.18.3 The contractor shall provide, install, connect and maintain all temporary water lines, telephone lines and electric cable between the naval base electrical power, telephone and water sources and the office

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space.

3.1.18.4 Remove the services when directed by the SUPERVISOR.

3.1.19 The contractor will be entitled to an equitable adjustment for any long distance charges incurred by Government personnel on contractor provided telephone lines. Request for equitable adjustment must be supported by telephone bills for the claimed costs.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

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ITEM NO: 992-11-002

COAR: 16-003

PCN: EXSY-Z743

EXSY-Z747

EXSY-Z757

CMP: NONE

PLANNER: FLAHERTY

1. SCOPE:

1.1 Title: Temporary Services; provide

1.2 Location of Work:

1.2.1 Not Applicable

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 MIL-HDBK-1025/1, Military Handbook Piers and Wharfs

2.3 29 CFR, Part 1915, OSHA

2.4 National Fire Protection Association Standard 30

2.5 (CNV e/005), National Fire Protection Association Standard 70

3. REQUIREMENTS:

3.1 Provide tug and pilot service for movement of the vessel to and from pier side position and to and from the outer limits of the harbor to the contractor's repair facility. Schedule all movement of the vessel during high tide.

3.2 Make connections and provide temporary services aboard the vessel on an uninterrupted and continuous basis, 24 hours per day, for the entire contract period. Temporary service hoses/lines shall be at a minimum, the same size as the ships risers at the connection points. Location of connections for temporary services shall be acceptable to the SUPERVISOR.

3.3 Provide and install mooring lines for securing the ship to the pier as indicated in the approved heavy weather plan required by Standard Item 009-69.

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The mooring lines shall be double braided nylon conforming to MIL-R-24050 and installed in locations shown on the approved heavy weather plan. Lines which cause obstruction on the pier may be omitted if so designated on the approved heavy weather arrangement.

3.4 Provide camels between ship and pier and on outboard side prior to a vessel, barge or floating crane coming alongside.

3.4.1 Camels and fenders shall be built and fit with rubber, pneumatic or foam filled fendering as outlined in 2.2 to maintain abrasion to the ship's paint.

3.5 Install and maintain rat guards, conforming to MIL-G-2767, on all mooring lines and on service lines 1-1/2 inches in diameter and larger for the entire contract period.

3.6 Gangways:

3.6.1 Provide two gangways, one forward and one aft.

3.6.1.1 Gangways and landing platforms shall be a minimum of 3 feet in width and be designed and constructed to support a minimum load of 75 pounds per square foot.

3.6.1.2 The entire length of gangways and adjacent areas shall be illuminated with weathertight lights, shielded to prevent temporary blinding of personnel.

3.6.2 Install safety nets under gangways and platforms.

3.6.2.1 Safety nets shall extend 6 feet on each side of gangways and platforms.

3.6.3 Maintain gangways free of debris, ice, snow and foreign matter.

3.6.4 Inclination of gangways shall not exceed 45 degrees.

3.7 Provide and maintain a watch hut, equipped with heat, lights and telephone, adjacent to each gangway location used for normal access.

3.7.1 Watch hut shall have windows to permit 360 degree viewing.

3.8 Potable water:

3.8.1 Provide 400 GPD of potable water at 60 PSIG to the ship's connections.

3.8.1.1 The quality of potable water shall meet the requirements of the local health regulatory body, based on samples taken from the connection



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used to provide the water.

3.8.1.2 Submit one legible copy, in hard copy or electronic media of a chemist water quality report under company letterhead to the SUPERVISOR, certifying that the water is suitable for human consumption.

3.8.2 Potable water hoses shall be designated by label plates bearing the inscription POTABLE WATER ONLY.

3.8.3 Chlorinate potable water hoses and connections with not less than 100 PPM chlorine solution for one half hour.

3.8.4 Potable water hoses shall be flushed for a minimum of 60 seconds before connecting to the system.

3.8.5 Connections of potable water system shall be made up using sealing compounds conforming to MIL-A-46146, Type I.

3.8.6 The potable water system shall be protected against back-flow by the installation of a vacuum breaker/back-flow preventer on the discharge side of the hose valves.

3.8.7 Connections between potable water supply systems and non-potable systems are prohibited.

### 3.9 Firefighting water:

3.9.1 Provide 625 GPM salt water fire fighting system at 100 PSIG during any period the ship's firemain is out of service due to work being accomplished by the contractor. This system is in addition to the fire fighting systems required by the standard item for fire protection.

3.9.1.1 The system shall consist of manifolds supplied by 2-1/2 inch lines. Each manifold shall be equipped with a gage.

3.9.1.2 Manifolds shall be spaced and located so that no more than 100 feet of 1-1/2 inch hose is required to reach any space aboard ship.

3.9.1.3 Provide 1-1/2 inch fire hose at each manifold to reach every space aboard ship with at least 2 hoses.

3.9.1.4 Verify minimum flow rates required by this work item and the standard item for fire protection on a weekly basis by demonstration to the SUPERVISOR.

### 3.10 Electric power:

3.10.1 Provide ungrounded electrical power at 220 amps, 440 volts AC, 60 Hz, 3 phase at the shore power connection to the ship switchboard.

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3.10.1.1 Voltage shall be regulated such that it does not exceed plus or minus (+) 5 percent of the steady state nominal 450 volts.

3.10.2 Install safety devices at dockside capable of automatically maintaining service during power surges and equipped with circuit breakers to de-energize the electrical power during overloads.

3.10.3 Shore power cabling shall have a current carrying capacity equal to or exceeding the specified shore power current requirements.

3.10.4 Connect the shore power cabling to the ship. Comply with the ship's polarity requirements.

3.10.5 Shore power cable shall be wrapped with protective covering at locations where chafing may occur.

3.10.6 Provide and maintain temporary lighting and power in areas of the ship where ship's lighting and power systems have been disrupted by the contractor.

3.10.6.1 Temporary lighting shall be equipped with industrial type shatterproof bulbs.

### 3.11 Telephones:

3.11.1 Provide two telephone direct trunk lines suitable for electronic data transmission (modem use) connected to the municipal telephone system with 24 hour continuous unlimited local service for the duration of the availability in the following locations:

3.11.1.1 C.O. State Room (Local and Long Distance)

3.11.1.2 Quarterdeck (Local and Long Distance)

3.11.2 Provide local telephone communications (one circuit and three phones) between ship, temporary berthing and temporary messing facilities for emergencies during the time that the crew is berthed and messed away from the ship.

3.11.3 Telephone systems designated long distance shall be installed in such a manner that the only way long distance calls can be made will be with a long distance calling card (credit card) that shall be obtained by the ship prior to start of availability.

### 3.12 Crane and rigging service:

3.12.1 Provide crane service and operator 15 hours and riggers 40 hours for loading and unloading Ship's Force material and equipment. The SUPERVISOR will coordinate crane service requirements.

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3.13 Install and maintain heaters in heated spaces throughout the vessel and maintain an ambient temperature of at least 50 to 55 degrees Fahrenheit, for the entire contract period during the time that the vessel's heating system is not in operation.

3.13.1 The temperature for living spaces shall be maintained at 65 to 75 degrees Fahrenheit.

3.13.2 Install and maintain air conditioning in air conditioned spaces and compartments at an ambient temperature of 65 to 75 degrees Fahrenheit.

3.14 Fire zone boundaries:

3.14.1 Maintain three fire zones aboard the vessel for the entire contract period. The fire zone boundaries will be the transverse bulkheads, including opening at frame 20, frame 29 and frame 43.

3.15 Vessel cleaning, garbage, debris and trash collection facilities:

3.15.1 Provide One, 20 cubic yard, covered container for collection of debris, trash and garbage generated by Ship's Force. The covered opening shall be a minimum of 3 feet by 3 feet.

3.15.1.1 Container shall be placed at suitable locations on the pier.

3.15.1.2 Garbage container shall be steam cleaned daily and maintained in a sanitary condition; free of insects and rodents.

3.15.1.3 Container shall be emptied daily, including two additional times weekly, as designated by the SUPERVISOR.

3.16 Provide and maintain a total of 5 portable fully charged, 15 pound capacity, CO2 fire extinguishers (for ship's force use) for the entire contract period. The fire extinguishers shall be inspected on a weekly basis.

3.17 Recharge a total of 5 fire extinguishers per month in accordance with the manufacturer's instructions as directed by the SUPERVISOR.

3.18 Provide daily disposal services to empty and dispose of 250 gallons effluent each day from ship's CHT holding tanks.

3.18.1 Sewage discharge shall be through the CHT deck risers using the ship's pumps with hoses connected and routed to a receiving station on the pier. Measure, using an in-line flow meter, record, and maintain a log of the sewage discharge.

3.18.2 Submit one legible copy, in hard copy or electronic media of a weekly report, listing the number of gallons of sewage discharge each week, with

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cumulative totals.

3.19 Furnish and maintain lavatory and sanitary facilities for ship's personnel during the periods the ship's facilities are out of service due to work being accomplished by the contractor. The facilities shall conform to the following minimum requirements:

3.19.1 Lavatories, one (with soap dispenser and towel dispenser).

3.19.2 Water closets, one.

3.19.3 Urinals, one.

3.19.4 Lavatory and sanitary facilities shall be located adjacent to the ship.

3.19.5 Facilities exact locations shall be approved by the SUPERVISOR.

3.19.6 Sanitary facilities shall be designated Ship's Force use only.

3.19.7 Sanitary facilities shall be sanitized daily.

3.20 Provide two storage spaces conforming to the requirements of 2.3 through 2.5. One space will be for flammable liquids storage (paint, flammable, and corrosive liquids) and one for hazardous materials storage. In addition to the requirements of 2.3 through 2.5, each storage space shall conform to the following:

3.20.1 Provide each storage space from the first day of the contract to the last day of the contract.

3.20.2 Each storage space shall be lockable and weatherproof.

3.20.3 Each storage space shall have 100 square feet of floor area.

3.20.3.1 Ceiling shall have a minimum height of seven feet.

3.20.3.2 Floor load limit shall be a minimum of 100 pounds per square foot.

3.20.3.3 Floor shall be liquid tight, including where the walls join the floor.

3.20.3.4 Accesses shall be contained through the use of noncombustible, liquid-tight raised coamings or ramps of at least four inches (10 cm) in height or otherwise designed to prevent the flow of liquids to adjoining areas.

3.20.3.5 Each aisle shall be maintained at a minimum of three feet wide.

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3.20.4 Install two fully charged 15 pound CO2 fire extinguishers, within four feet of each access.

3.20.5 Each storage space shall have a minimum of 250 square feet of 24-inch wide shelving.

3.20.6 Each storage space shall have a minimum of 100 foot candles of lighting throughout provided by explosive proof fixtures.

3.20.7 Each storage space shall have a minimum of one explosive proof, grounded, 120 volt AC receptacle.

3.20.8 Provide ventilation for each storage space by non-sparking electric exhaust vent fan(s) or a mechanical exhaust ventilation system(s). The location of the ventilation system(s) shall be arranged to provide air movement across all areas of the floor to prevent accumulation of flammable vapors. Exhaust from each storage space shall be directly to the exterior of each space without recirculation.

3.20.8.1 Each ventilation system(s) shall provide, at a minimum, one cubic foot per minute (CFM) of exhaust per square foot of floor area, but not less than 150 cfm each if multiple ventilation systems are used.

3.20.9 Locate each storage space within close proximity to the ship, but in no case any further than 500 feet from the ship.

### 3.21 Warehouse space:

3.21.1 Provide a secure lockable warehouse, with one separate storage area as follows:

3.21.1.1 A secure lockable high security area for highly pilferable items. This area shall have 400 square feet of floor space.

3.21.2 Warehouse spaces shall be furnished with one work bench, lights, heating and electrical outlets and be in close proximity to the vessel. Deliver the keys to the SUPERVISOR.

3.21.2.1 Work bench shall be 30 inches wide by 36 inches high by approximately 8 feet long and grounded electrically.

3.21.2.2 Lighting shall be equal to that provided for four double tube, 40 watt fluorescent lights. Electrical outlets shall be eight each, 115 volts AC duplex receptacles. Install heating unit to maintain 72 degrees Fahrenheit temperature. Install two compressed air outlets at each work bench one half inch, 100 PSIG with Navy type quick disconnect adapters.

3.22 Provide a secure, locked facility with heat, lights, 110V electrical service and two (2) 15 pounds CO2 fire extinguishers for use as a work shop for

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Ship's Force during availability. Space to include two furnished offices with four desks each and air conditioning and telephone for each office, toilet facility, one class room, storage room.

3.23 Install protective covering for main passageway decks and interior deck covering systems throughout the ship, Forward Engine Room, (3-29-0-E), Aft Engine Room, (3-36-0-E), and Seal Prep (3-49-0-E). The protective covering shall be installed and maintained to protect the entire passageway decks and interior deck covering systems from damage and deterioration during the availability. Types of protective deck covering to be used are detailed in 3.23.1 and 3.23.2.

3.23.1 The protective covering for main passageway decks and interior deck covering systems shall be herculite canvas (MIL-C-43006, Class I) and secured to the deck with tape. The SUPERVISOR will designate the exact areas to be covered.

3.23.2 The protective covering for Forward and Aft Engine Rooms, and Seal Prep shall be 1/2" exterior plywood, fire retardant, (MIL-L-19140). Plywood shall be cut to fit all floor plates in Forward and Aft Engine Rooms, and Seal Prep. Plywood shall be secured to the deck with tape. The SUPERVISOR will designate exact areas to be covered.

3.23.3 Upon completion of the availability remove and dispose of the protective deck covering and tape.

3.24 Provide temporary electrical power to the ship's impressed current cathodic protection system when the ship is waterborne and the systems normal source of power is to be secured for a period greater than 15 days.

3.25 In addition to the facilities provided above, provide a total of (2) two portable water closets (portable toilets) with urinals to be located on board vessel, (1) forward, main deck, and (1) aft, main deck.

3.25.1 Portable water closets shall be emptied a minimum of one time every two days or when designated by the SUPERVISOR.

3.25.2 Portable water closets shall be provided and maintained for the entire contract period.

3.26 Grey Water:

3.26.1 Provide temporary jumpers, hoses, and daily disposal service to dispose of 400 gallons per day of grey water.

3.26.2 Grey water shall be collected from the ship's CHT system or by installing connections to the ship's scuppers. Measure, using an in-line flow meter, record, and maintain a log of the disposed grey water.

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3.26.3 Submit one legible copy, in hard copy or electronic media of a weekly report, listing the number of gallons of disposed grey water each week, with cumulative totals.

3.27 Disconnect and remove temporary service equipment when directed by the SUPERVISOR.

3.28 Provide lay down area in close proximity of the ship but in no case more than 500 feet of the ship for two each 20 foot mil vans to support ship's force work.

4. NOTES:

4.1 The fire extinguishers provided for Ship's Force use shall not be used to supplement the contractors fire watches.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP: USS HURRICANE (PC-3)

ITEM NO: 992-11-003

COAR: 16-003

PCN: EXSY-Z750

CMP: NONE

PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Oil Spillage and Floating Sandblasting Debris Booms; install

1.2 Location of Work:

1.2.1 Around Entire Perimeter of Patrol Craft

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 None

3. REQUIREMENTS:

3.1 Install oil spillage/floating sandblasting debris containment boom around the entire perimeter of the patrol craft and around oil barges or tankers during defueling and fueling periods, during the entire time the patrol craft is waterborne.

3.1.1 The containment boom shall have a minimum of four inches in height flotation with at least an eight inch skirt. Connections between the boom shall be oil tight.

3.1.2 Ensure that boom is anchored out at least 4 feet and a maximum of 20 feet from the patrol craft.

3.1.3 Remove and dispose of oil spillage, paint residue, sandblasting residue and other debris in accordance with local, state and federal environmental regulations.

3.2 Remove the boom when directed by the SUPERVISOR.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):



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5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

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ITEM NO: 992-11-004

COAR: 16-003

PCN: EXSY-Z749

CMP: NONE

PLANNER: SULLIVAN

1. SCOPE:

1.1 Title: Ship's Force Parking Area (Contractor Provide Watch Hut, Guards);  
provide

1.2 Location of Work:

1.2.1 Not Applicable

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 None

3. REQUIREMENTS:

3.1 Provide and maintain a parking area for Ship's Force personnel in close proximity to the pier/drydock at which the vessel is docked (maximum distance to be 1/4 mile) for the entire availability including 5 days after the ship departs the contractors plant in accordance with the following:

3.1.1 The parking area shall be well lighted and be spaced and laid off and permanently marked to adequately accommodate forty (30) automobiles simultaneously.

3.1.1.1 Lighting throughout the parking area shall be 5 foot candles (minimum) measured 3 feet above the ground.

3.1.2 The parking area shall be hard surface or gravel surface and be completely enclosed with a 6 foot chain-link fence topped with three rows of barbed-wire and with a minimum of two accesses to permit entrance and exit of vehicles. Accesses shall be lockable. Provide a lock with key for each access. Locks shall be keyed alike. Turn keys over to the SUPERVISOR.

3.1.3 Provide and maintain a watch hut at each entrance/exit equipped with heat, lights and two-way communications adjacent to the parking area gate. The watch hut shall have windows sufficient to permit 360-degree viewing from the inside. The SUPERVISOR will designate the location of each watch hut.

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3.1.3.1 Provide portable two-way communications between each parking attendant/guard, Ship's Quarterdeck and Contractor's Security Office.

3.1.4 Provide a security force consisting of one roving guard and one guard stationed at each watch hut to verify entry into the parking area and to prevent theft, damage and pilferage of Ship's Force vehicles. Provide supplemental roving patrols by Contractor Security Guard Force, inside and outside of the parking area, every 2-3 hours minimum during the normal workday and once each hour at the end of the normal workday starting at one hour before sunset to one hour after sunrise.

3.1.4.1 The security force will be provided 24 hours per day, 7 days per week.

3.1.5 Notify the SUPERVISOR within 24 hours of any acts of theft, damage, pilferage or assault directed at Ship's Force personnel or Ship's Force vehicles in the vicinity of the designated parking area.

3.1.6 Five days prior to the Ship's arrival, provide a plan specifying where and how Ship's Force Parking and Security will be provided. Included in the plan shall be all efforts made to provide additional city police/guard protection to areas outside the perimeter fencing.

3.1.6.1 Submit one legible copy, in hard copy or electronic media of the security plan under company letterhead to the SUPERVISOR.

3.2 Provide an additional parking area adjacent to the Ship or pier. The area shall be lighted and be spaced and partitioned to adequately accommodate 6 automobiles simultaneously.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	<u>USS HURRICANE (PC-3)</u>	ITEM NO:	<u>992-11-005</u>
COAR:	<u>16-003</u>	PCN:	<u>EXSY-Z745</u> <u>EXSY-Z746</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>SULLIVAN</u>

1. SCOPE:

1.1 Title: Defueling and Fueling; accomplish

1.2 Location of Work:

1.2.1 Fuel Oil Tanks 3-20-2-F 3-20-1-F 3-43-0-F 3-43-1-F 3-43-2-F

1.2.2 Contaminated Oil Tank 3-39-0-F

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

3. REQUIREMENTS:

3.1 Provide Conveyance to off-load serviceable petroleum products from the ship.

(I) (G) "CLEAN CONVEYANCE"

3.1.1 Ensure that conveyance is empty and clean prior to receiving petroleum products from the ship.

3.1.1.1 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of a report listing capacity (gallons) and registration number of conveyance to the SUPERVISOR within four hours of off-loading petroleum products from tanks listed in 1.2.

3.1.2 Off-load a total of 2000 gallons of Navy Fuel and 500 gallons of contaminated oil from the ship.

3.1.2.1 Hoses and pumps shall be clean and dry prior to start of off-loading.

3.1.2.2 Mixing of dissimilar petroleum products is prohibited, except when directed by the Naval petroleum inspector.

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3.1.2.3 Measure and record the amount of petroleum products in the conveyance upon completion of off-loading or when filled to capacity.

3.1.2.4 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.1.2.3 to the SUPERVISOR.

3.2 When notified by the SUPERVISOR, provide manpower assistance for on-loading 16,800 gallons of Navy Fuel and 200 gallons of miscellaneous petroleum products.

3.2.1 Measure and record the amount of petroleum products on-loaded in 3.2.

3.2.1.1 Submit one legible copy, in hard copy or electronic media of a report listing results of 3.2.1 to the SUPERVISOR.

3.2.2 The miscellaneous petroleum products shall be identified by the SUPERVISOR.

4. NOTES:

4.1 Ship's equipment shall not be used to accomplish the requirements of this work item.

4.2 Ship's Force shall purchase new fuel and petroleum products.

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

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COAR:	<u>16-003</u>	PCN:	<u>EXSY-Z755</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>FLAHERTY</u> <u>SULLIVAN</u>

1. SCOPE:

1.1 Title: Cleaning and Pumping; accomplish

1.2 Location of Work:

- 1.2.1 Auxiliary Machinery Room No. One, 3-14-0-E
- 1.2.2 Auxiliary Machinery Room No. 2, 3-20-0-E
- 1.2.3 Forward Engine Room, 3-29-0-E
- 1.2.4 Aft Engine Room, 3-36-0-E
- 1.2.5 Auxiliary Machinery Room No. 3, 3-49-0-E
- 1.2.6 Steering Compartment, 3-53-0-E
- 1.2.7 Void, 3-7-0-V
- 1.2.8 Windlass Room, 3-0-0-Q
- 1.2.9 Fuel Tank, 3-20-1-F
- 1.2.10 Fuel Tank, 3-20-2-F
- 1.2.11 Fuel Tank, 3-43-0-F
- 1.2.12 Fuel Tank, 3-43-1-F
- 1.2.13 Fuel Tank, 3-43-2-F
- 1.2.14 Potable Water Tank, 3-14-1-W
- 1.2.15 Potable Water Tank, 3-14-2-W
- 1.2.16 Sewage Holding Tank, 3-31-0-W
- 1.2.17 Fwd Grey Water Tank, 3-34-0-W
- 1.2.18 Oily Water Tank, 3-36-0-F
- 1.2.19 Dirty Oil Tank, 3-39-0-F

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1.2.20 Aft Grey Water Tank, 3-42-0-W

1.2.21 Cofferdam, 2-54-1-V

1.2.22 Cofferdam, 2-54-2-V

1.2.23 Ballast Tank, 3-55-1-B

1.2.24 Ballast Tank, 3-55-2-B

1.2.25 Chain Locker, 2-5-0-Q

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 MIL-STD 777, Schedule of Piping, Valves, Fittings, and Associated Piping Components

2.3 802-5959353 Rev AU, MIL-STD-777 Modified for DDG-51 Class, Schedule of Piping, Valves, Fittings, and Associated Piping Components

2.4 S9086-T8-STM-010/CH-593, Pollution Control

2.5 S9086-SP-STM-010/CH-542, Gasoline and JP-5 Fuel Systems

2.6 MIL-HDBK-291, Military Handbook Cargo Tank Cleaning

3. REQUIREMENTS:

3.1 Open, ventilate, empty, clean, render dry and maintain any tank or space including adjacent tanks, spaces or piping systems where the scope of repairs will result in a need for certification during the performance of this Job Order.

3.1.1 Tanks/spaces listed in 1.2.7 through 1.2.25 are to support inspections by Government inspectors.

3.1.2 Ensure that harmful vapors, fumes, or mists are ventilated to the exterior of the vessel.

3.1.3 Submit one legible copy, in hard copy or electronic media of a report listing the location, origin, and quantity of each manhole cover removed in 3.1 in respect to its tank, ship's frame, and distance off centerline to the SUPERVISOR.

3.1.4 Install expandable plugs or blanks, painted blaze orange, in

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associated tank piping at the first valve or flange. Associated piping is defined as "an assembly of pipe, tubing, valves, fittings and related components forming a whole or a part of a system which starts or terminates in subject area, thus being common to and associated with same."

3.1.4.1 Submit one legible copy, in hard copy or electronic of a report listing the location of each expandable plug and blank to the SUPERVISOR.

3.1.4.2 Remove each expandable plug or blank upon completion of repairs and testing, and install new gaskets and fasteners in accordance with applicable Categories and Group of 2.2 or 2.3.

3.1.5 Clean and disinfect each CHT/sewage tank and associated piping in accordance with 2.4.

3.1.6 Clean each tank and any associated piping in accordance with 2.5 through 2.6.

3.2 Steam clean each area where the removal of preservative is required.

3.2.1 Install new rust preventative compound conforming to MIL-PRF-16173, Grade One.

3.2.2 Install new Monel fill and drain plugs conforming to QQ-N-281, Class B, to replace those removed to accomplish steam cleaning.

3.3 Pump tanks containing petroleum products to the low suction level of each tank.

3.3.1 Products shall be run through a flow meter calibrated in gallons.

3.3.2 Off-loading/on-loading of petroleum products shall be accomplished during daylight hours only and no "Hot Work" shall be permitted.

3.3.3 Hoses, pumps, and storage containers shall be clean and dry prior to start of off-loading/on-loading.

3.3.4 Submit one legible copy, in hard copy or electronic media of completed Attachment A (products inventory) to the SUPERVISOR.

3.3.5 Remove and dispose of liquids not being stored for reuse, including compensating sea water from the compensating fuel tanks, sludge, and debris in accordance with federal, state, and local laws, codes, ordinances, and regulations.

3.3.5.1 Fill the compensating fuel tanks with sea water upon completion of work.

3.4 Take samples of petroleum products from each tank prior to removal from



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ship and storage.

3.4.1 Accomplish analysis of petroleum products two working days prior to off-loading.

3.4.2 Accomplish a chemical analysis of each sample of distillate fuel and JP-5.

3.4.2.1 Test each sample for flashpoint, using the PENSKEY-MAR TENS method. The flashpoint should be in the range specified by 2.5.

3.4.2.2 Measure and record the API Gravity at 60 degrees Fahrenheit.

3.4.2.3 Check the bottom sediment and water, using a centrifuge. For distillate fuel, sediment and water should be less than 0.1 percent. For JP-5, sediment shall not be greater than 8 milligrams per liter and there should be no visible traces of water.

3.4.2.4 Measure the acid number. The acid number shall be within five percent of the original value upon return to ship.

3.4.2.5 Submit one legible copy, in hard copy or electronic media of results of the analysis of 3.4.2 to the SUPERVISOR.

(V) (G) "VERIFY OFF LOAD COORDINATION"

3.5 Coordinate the off loading or transferring of fluids through the ship's Damage Control Assistant (DCA), via the SUPERVISOR, to maintain ship's stability and to prevent flooding.

3.5.1 Obtain a list from the SUPERVISOR of petroleum soundings for tanks prior to start of pumping operations.

(V) (G) "VERIFY CLEAN CONTAINER"

3.5.2 Off-load petroleum in the following amounts:

3.5.2.1 Distillate fuel 2000 gallons

3.5.2.2 JP-5 0 gallons

3.5.2.3 Lubricating oil 300 gallons

3.6 Off-load and store or off-load and transport to the nearest Naval Fuel Depot (NFD), at the discretion of the contractor based upon cost effectiveness, the distillate fuel and JP-5.

3.6.1 Notify the SUPERVISOR prior to transporting the off-loaded petroleum products.

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3.6.2 Deliver to the nearest NFD when directed by the SUPERVISOR. Conveyance will be accepted from 0730 to 1600, Monday through Friday, holidays excluded. The NFD will accomplish a petroleum analysis requiring a time duration of one hour prior to off-loading each conveyance.

3.6.3 Notify the NFD Director a minimum of five working days prior to delivering the off-loaded petroleum products, via the SUPERVISOR.

3.6.4 Submit one legible copy, in hard copy or electronic media of completed Attachment A, signed by the NFD Director, listing the amount and type of petroleum products received, to the SUPERVISOR within 24 hours after disposition.

3.6.5 Distillate fuel and JP-5 fuel off-loaded and stored by the contractor shall be sampled and analyzed in accordance with 3.4.1 through 3.4.2.4 prior to on-loading.

3.6.5.1 Submit one legible copy, in hard copy or electronic media of each analysis to the SUPERVISOR prior to on-load.

3.6.6 Provide ship with same type, grade, and quantity of distillate fuel and JP-5 off-loaded and stored, when directed by the SUPERVISOR.

3.7 Off-load and store in clean storage containers the lube oil and hydraulic oil from the tanks. On-load when directed by the SUPERVISOR.

3.7.1 Accomplish the requirements of 009-63 of 2.1.

3.7.1.1 Test and analyze samples from each tank prior to off-loading.

3.7.1.2 Test and analyze samples from each storage container prior to on-loading.

3.8 Clean each bilge of spaces listed in 1.2, free of trash, debris, grease, oily liquids, and other liquid contaminants prior to the initial certification.

3.8.1 Maintain each bilge to a clean, dry condition for the duration of the availability on a 7-day-a-week, 24-hour-a-day basis.

3.8.2 Remove and dispose of an additional 500 gallons of non-hazardous liquids from bilges listed in 1.2, generated by the Navy, after initial cleaning and certification is obtained. Removals shall be measured. Total amount of liquids removed greater or less than the above amount shall be the subject of an equitable adjustment.

(V) (G) "SOURCE DETERMINATION"

3.8.2.1 Submit one legible copy, in hard copy or electronic

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media of a report listing the amount of gallons removed in 3.8.2, responsible source of liquids, and date liquids were removed after each pumping operation.

(V) (G) "CLEAN AND DRY BILGES"

3.8.3 Prior to space turnover, when directed by the SUPERVISOR, accomplish a final detergent cleaning of each bilge of spaces listed in 1.2, removing all trash, debris, grease, oily liquids, and other liquid contaminants from the bilges.

3.8.3.1 Remove and install pumping equipment three evolutions after space turnover to support the requirements of 3.8.1 and 3.8.2.

3.9 Clean each chain locker free of silt, mud, and foreign matter.

3.10 Dispose of liquids in accordance with federal, state and local laws, codes, ordinances or regulations.

3.11 Tank Closure Repairs:

3.11.1 Clean, chase, or tap threaded areas prior to installing covers.

3.11.2 Weld up, drill, and tap a total of 4 stripped manhole cover bolting ring holes for tanks opened in 3.1.

3.11.3 Remove existing and install new a total of 4 missing or broken manhole cover studs for tanks opened in 3.1 conforming to MIL-DTL-1222, Type IV, Grade 304.

3.11.4 Accomplish the requirements of 009-12 of 2.1, including Table 2, Column A, Lines One through 7.

3.11.5 Accomplish the requirements of 009-32 of 2.1, for new and disturbed surfaces.

(V) (G) "INSPECT TANK CLEANLINESS"

3.12 Inspect each tank for cleanliness prior to final closing.

3.12.1 Submit one legible copy, in hard copy or electronic media of a report listing the names of personnel present during inspection to the SUPERVISOR within 72 hours after completion of final closing.

3.12.2 Install manhole cover for each tank, using new gaskets conforming to SAE-AMS-C-6183, Class One, new CRES washers conforming to FF-W-92, Type A, Grade One, Class B, and new brass nuts conforming to MIL-DTL-1222, Type One, Grade 464, and/or CRES hex head cap screws conforming to ASTM A307.

3.12.2.1 Install new gaskets conforming to ASTM D2000-75E, new hex nuts conforming to ASTM A307, and new hex head cap screws conforming to ASTM

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A307 for DDG-51 Class ships' sewage tanks.

3.12.2.2 Install new gaskets conforming to A-A-55759, Class 3A, Grade 30, and new hex head brass nuts conforming to MIL-DTL-1222, Type I, for DDG-51 Class ships' high temperature compartments.

3.12.2.3 Install new hex head, self-locking nuts (nickel-copper) conforming to NAS-M-25027 for LSD-41 Class ships.

3.12.2.4 Install new cotton wax wicking to studs prior to installing washers and nuts for DDG-51 Class ships.

3.12.2.5 Install new bolts conforming to MIL-DTL-1222, Grade 5, Class 316 (CRES), for flush deck bolted manhole covers.

3.12.3 Install access cover for each potable water, feedwater, and sewage tank, using new gaskets conforming to MIL-PRF-1149, new nuts conforming to MIL-DTL-1222, Type I, Grade 5, zinc coated, and new CRES washers conforming to FF-W-92, Type A, Grade One, Class B.

3.13 Accomplish the requirements of 009-32 of 2.1, for new and disturbed surfaces.

#### 4. NOTES:

4.1 Location(s) of the Local Naval Fuel Depot(s) receiving off-loaded fuels are is/are available from the SUPERVISOR.

4.2 For the purpose of this Work Item, the term "tank or space" includes voids, cofferdams, and inaccessible or confined areas.

4.3 Consider each bilge to contain contaminated oily salt water.

4.4 Booklet of General Plans and Tank Sounding Tables are available for review at the office of the SUPERVISOR.

4.5 The SUPERVISOR will provide sequence of tanks and dates of inspections referenced in 3.1.1.

#### 5. GOVERNMENT FURNISHED MATERIAL (GFM):

##### 5.1 LLTM:

1. None.

##### 5.2 PUSH MATERIAL:

1. None.

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5.3 KITTED MATERIAL:

1. None.

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COAR:	<u>16-003</u>	PCN:	<u>EXSY-Z758</u>
		CMP:	<u>NONE</u>
		PLANNER:	<u>FLAHERTY</u>
			<u>MCCUNE</u>
			<u>SULLIVAN</u>

1. SCOPE:

1.1 Title: Drydocking and Undocking; accomplish

1.2 Location of Work:

1.2.1 Drydock and throughout the Ship

1.3 Identification:

1.3.1 Not Applicable

2. REFERENCES:

2.1 Standard Items

2.2 MIL-STD-1625, Safety Certification Program for Drydocking Facilities and Shipbuilding Ways for U.S. Navy Ships

2.3 SUPSHIP San Diego Reference #234, Dockmaster Qualifications, dated 15 November 1984

2.4 085-6736906 Rev E, Patrol Coastal Docking Plan

2.5 085-5107001 Rev A, Pc-1 Class S/A 0032K Docking Plan

2.6 S9086-7G-STM-010/CH-997, NSTM, Docking Instructions and Routine Work in Dry Dock

2.7 S9086-CH-STM-010/CH-074, NSTM, Welding and Allied Processes

2.8 S9086-RK-STM-010/CH-505, NSTM, Piping Systems

2.9 SUPSHIP San Diego Reference #207, Prevention of Accidental Graving Dock Flooding, dated 15 October 1982

2.10 SUPSHIP San Diego Reference #214, Graving Dock Perimeter, dated 16 March 1983

3. REQUIREMENTS:

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3.1 Furnish a sound dock and equipment certified in accordance with 2.2, dockmaster and qualified personnel in accordance with 2.3, to safely and satisfactorily dock the USS HURRICANE (PC-3) in accordance with 2.4.

3.2 Provide a licensed marine pilot and tugs with a minimum of 1200 shaft horsepower each for the complete transfer, docking and undocking of the ship.

3.3 Notify the ship's Commanding Officer, 24 hours prior to the intended scheduled docking and undocking.

(I) (G) "BLOCKING ARRANGEMENT"

3.4 Check locations of each underwater fitting and equipment against current plan prior to setting each block. Establish an alternate blocking arrangement plan, which includes calculations that establish the block loading pressures are limited to 20 long tons per square foot and that at least 90 percent of all blocks land on longitudinal strength members or transverse bulkheads in the event the blocking arrangement cannot conform to the requirements of 2.4 and 2.5.

3.4.1 Submit one legible copy, in hard copy or electronic media, of alternate blocking arrangement a minimum of 5 working days prior to docking, to the SUPERVISOR.

3.5 Identify all known obstructions within the confines of the drydock which will preclude the accomplishment of any work contained in this contract.

3.5.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.5 to the SUPERVISOR a minimum of 24 hours prior to drydocking.

3.6 Set and align blocks in accordance with 2.4 and 2.5. Use new or uncrushed blocking soft caps.

(I) (G) "INSPECT BLOCKING"

3.7 Accomplish a final inspection of blocking in accordance with 997-2.2.3.3 of 2.6.

3.7.1 Submit one legible copy, in hard copy or electronic media, of documentation of inspection showing blocking locations relative to sighting marks on dock coping, spacing, offsets, heights and shaping to the SUPERVISOR at least 4 hours prior to flooding the drydock.

(I) (G) "SOUNDINGS"

3.8 Obtain sounding for each tank from the Ship's Force and determine ballast requirement to drydock the ship.

3.8.1 Submit one legible copy, in hard copy or electronic media, of a report indicating list, trim and stability calculations, and proposed ballast

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requirements to the SUPERVISOR for review 72 hours prior to ballasting of tanks for drydocking.

3.8.2 Ballast or deballast tanks as directed by the Dockmaster.

3.8.3 Provide ballasting and necessary service to add, remove or shift clean fresh or salt water to maintain stability for docking and the entire contract period in various shipboard tanks as directed by the SUPERVISOR.

3.8.3.1 Consider removed ballast water as contaminated oily water.

3.8.3.2 Clean each fuel tank used for ballasting.

3.8.4 Empty, clean and wipe dry each tank selected for ballasting during drydocking upon completion of each evolution.

3.8.5 Maintain a weight log and liquid load log throughout the drydocking period, listing any changes made by the contractor that increase or decrease the weight by more than 2,000 pounds.

3.8.5.1 Submit one legible copy, in hard copy or electronic media, of each proposed weight change in excess of 4,000 pounds to the dockmaster for approval, a minimum of 24 hours prior to making that change.

3.8.5.2 Exclude sandblast grit from the requirement of 3.8.5.

(I) (G) "VISUAL INSPECTION"

3.9 Accomplish joint visual inspection of the drydock basin with the PWC drydock foreman and the SUPERVISOR. Record present conditions, including each discrepancy found, related to the structure, outfitting, each equipment and system of the drydock basin prior to docking the ship.

3.9.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.9 to the SUPERVISOR.

3.10 Conduct a docking conference attended by the ship's Commanding Officer, the SUPERVISOR, and the contractor's Dockmaster who will be present during docking evolution, within 3 working days prior to docking. The Dockmaster shall discuss the time of docking, tide situation, tug and pilot arrangements, line handling, ship's force responsibilities, electrical shore power, grounding and other services and procedures.

3.11 Drydock the ship.

3.11.1 Utilize divers during the drydocking of all ships of 500 long tons or larger to verify ship centering, interferences and block contact.

3.11.2 Utilize divers to wedge or remove blocks, where discrepancies



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are reported, as directed by the Dockmaster.

3.11.3 Inspect the fit on the blocks immediately after the ship is drydocked.

3.12 Erect shrouds/curtains to contain environmental pollutants generated during entire drydocking evolution.

3.12.1 Shrouds/curtains shall envelope entire ship and dock basin.

3.12.2 Remove upon completion of drydocking.

3.13 Clean the ship's underwater hull and each fitting to ensure complete removal of dirt, slime, marine growth, fouling, and other foreign substances within 48 hours of dewatering.

3.13.1 Wash down the entire dock basin to remove salt, mud, sand and debris immediately after the ship is docked.

3.13.2 Maintain the entire dock basin free from accumulation of sand, debris and salvageable materials on a daily basis.

3.14 Shim between blocking and hull in the event of hull movement due to removal of ballasting or shifting of ship's load.

3.15 Install temporary drain scuppers and lines to each of the ship's sanitary and non-sanitary (including each machinery overboard discharge) drain lines immediately after docking.

3.15.1 Connect each drain line to a receiving station in dock basin.

3.15.2 Maintain each drain line to ensure sewage is not deposited in dock basin.

3.15.3 Remove each temporary drain scupper and line within 24 hours of undocking ship or when directed by the SUPERVISOR.

3.16 Connect ship's hull, when in drydock, to the established connection point at the bow and stern of vessel and ground connection in dry dock in accordance with 074-5.8 through 074-5.24 of 2.7.

3.16.1 Connect the static ground leads to the ship before water is pumped down to one foot level above keel level.

3.17 Install and maintain 2 each centrifugal portable pumps each rated at 750 GPM to maintain a constant pressure of 100 PSI + or - 10 PSI of salt water and temporary fire stations complete with hoses, nozzles and fittings in dock basin on each side of ship.

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3.17.1 Hook up each pump to the temporary fire stations with hoses or piping and connections.

3.17.2 Ensure source of water is from the sea with foot valves and hoses hooked up to each pumps.

3.17.3 Ensure each fire station has a minimum of 100 feet of 2 1/2 inch hose and is spaced 100 feet apart for the length of the ship.

3.17.4 Inspect each fire station daily.

3.17.5 Install an independent control cut-off valve between the supply and each temporary fire station.

3.17.6 Hydrostatically test each fire station and fire hose to 250 PSI for 10 minutes prior to installation. Allowable leakage: None.

3.17.7 Stencil each fire hose, 18 inches from end fitting, in 2 inch high block letters showing test date and test pressure.

3.17.7.1 Install test label plate on upper portion of each fire station with test data.

3.17.8 Ensure fire fighting hoses, connecting hoses and fittings are compatible with the ship's equipment.

3.17.8.1 Provide one outlet for each temporary fire station to accommodate one 2 1/2 inch Y-gate with an independent gate valve in front of the Y-gate.

3.17.8.2 Install a standard 2 1/2 by one and 1/2, by one and 1/2 inch Y-gate on each of the temporary fire station outlets.

3.17.8.3 Install 2 each 50 foot lengths of one and 1/2 inch fire hose, connected together on each outlet of each Y-gate.

3.17.8.4 Install caps on the unused 2-1/2 inch Y-gate transfer outlets.

3.17.8.5 One and 1/2 inch and 2-1/2 inch fire hoses shall be standard Navy double-jacketed, cotton, rubber-lined hose capable of withstanding a minimum of 250 PSI.

(I) (G) "PRESSURE VERIFICATION"

3.17.9 Maintain a pressure of 100 + or -10 PSIG salt water for fire fighting with the connection between supply side and the most remote temporary fire station. Install pressure gauges at each inlet connection.

3.17.10 Notify the SUPERVISOR in writing 24 hours prior to making any

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changes to the temporary fire station system.

(I) (G) "FLOW RATES"

3.17.11 Demonstrate minimum flow rate of 750 GPM on a weekly basis to the SUPERVISOR, for each temporary fire station.

3.17.12 Maintain each hose, nozzle and associated fire fighting equipment in good working condition and in position ready for fire fighting purpose. Trice hoses up 6 inches when not in use.

3.17.13 Ensure that a supply of hose adapters and spanner wrenches for mating ship's fire fighting equipment, hoses and nozzles, with shipyard and municipal fire equipment are readily available in the dock basin, stored in a weatherproof box.

3.17.14 Utilize installed systems which meet the requirements of 3.18 when inspected and approved by the SUPERVISOR.

3.18 Maintain watertight integrity by securing each underwater hull opening and seal each valve at the end of each shift not immediately followed by another shift engaged in working to maintain maximum hull watertight integrity in the event of flooding in accordance with 2.8 and 2.9.

3.19 Inspect the underwater hull, each recess, and each appendage for conformance with 2.4 and 2.5.

3.19.1 Check and correct 2.4 and 2.5, to conform to the ship's full form, each appendage and each shell opening.

3.19.2 Submit 2 corrected copies of 2.4 to the SUPERVISOR.

3.20 Accomplish stability and loading calculations based on weight changes made on the ship while in dry dock. Accomplish calculations to determine conditions upon undocking based on the conditions upon docking and the weight changes made by the ship's force and the contractor while in dry dock. Determine ballast requirements necessary to maintain list, trim and stability conditions as specified in 3.8. Submit these calculations to the SUPERVISOR 72 hours prior to undocking ship.

3.20.1 Install ballast, and ballast or deballast tank as directed by the Dockmaster.

3.20.2 Provide ballasting and necessary service to add, remove or shift clean fresh or salt water to maintain stability for undocking and the entire contract period in various shipboard tanks as directed by the SUPERVISOR.

3.20.2.1 Consider removed ballast water as contaminated oily water.

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3.20.3 Empty, clean and wipe dry each tank selected for undocking upon completion of each evolution.

3.21 Record required data and submit one legible copy, in hard copy or electronic media, of NAVSEA Form 9997/1 through 9997/5 providing a record of any changes of ship's configuration, including major weight alterations, cathodic protection installation, major hull or shell renewals and repairs, or underwater hull and tank preservation to the SUPERVISOR no later than 72 hours prior to undocking.

3.22 Conduct an undocking conference similar to that in 3.10 a minimum of one working day prior to undocking.

(I) (G) "UNDOCK"

3.23 Undock the ship at a date and time mutually agreed upon by the SUPERVISOR and the contractor. Before undocking, ensure that work accomplished during drydock period such as sea valves, shaft seals and other hull penetrations below full load draft are watertight.

(I) (G) "INSPECTION"

3.23.1 Conduct a final inspection of the ship and drydock basin prior to flooding. Ensure all work is completed below waterline and that drydock is free of all equipment, trash and debris.

(I) (G) "WATERTIGHT INTEGRITY"

3.24 Stop flooding dry dock at a water level determined during undocking conference in 3.23, which in any case will be before the ship lifts off the blocks. Accomplish a watertight integrity inspection of all work affecting water tightness of the hull or hull penetration below the water line in company of the ship's force. Continue flooding of the dock when directed by the SUPERVISOR.

3.25 Accomplish the requirements of 009-32 of 2.1, for new and disturbed surfaces to match surrounding areas.

#### 4. NOTES:

4.1 Work in this item interfaces with Work item 583-90-001, titled, ShipAlt PC1-0032K, Combatant Craft Retrieval System; accomplish.

#### 5. GOVERNMENT FURNISHED MATERIAL (GFM):

##### 5.1 LLTM:

1. None.

##### 5.2 PUSH MATERIAL:

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1. None.

5.3 KITTED MATERIAL:

1. None.